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CLAIMS

[Claim(s)]

[Claim 1] Bill receipt equipment characterized by having had the receipt room which contains a bill, and the conveyance path in which a bill is conveyed, and preparing the moving-part material which rotates in the conveyance direction of the bill in it while changing the direction of the bill conveyed into the corner of a street of the above-mentioned conveyance path.

[Claim 2] Said moving-part material is bill receipt equipment according to claim 1 characterized by being a roller, belts, or such combination.

[Claim 3] Bill receipt equipment according to claim 1 or 2 which makes the include angle of said corner of a street 80 to 110 degrees, and is characterized by making it convey, pinching the bill which prepared said a part of moving-part material in the gate arranged at the above-mentioned corner of a street, and has been conveyed at the above-mentioned gate between the conveyance means conveyed to the above-mentioned moving-part material and the above-mentioned moving-part material.

[Claim 4] It is bill receipt equipment according to claim 3 with which said moving-part material is characterized by fixing the end to the pawl of the center of two or more above-mentioned pawls, and fixing the other end to a part for said receipt room entrance hand anterior part by making said gate into the rake configuration which consists of two or more pawls.

[Claim 5] Said receipt room is bill receipt equipment according to claim 1, 2, 3, or 4 characterized by being classified into plurality according to the class of bill.

[Claim 6] The bill receipt equipment according to claim 5 characterized by to have classified said receipt room in the vertical direction, to have prepared one of said conveyance means common to the flank of the receipt room by which the partition was carried out [above-mentioned], to have considered as the gate which fixed the bottom gate at the bottom of the above-mentioned conveyance means in the state of open, and to consider as the gate which can open and close the gates other than the above-mentioned bottom gate freely.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the bill receipt equipment which has the function to take out a bill from a receipt room according to a demand while it identifies a bill and carries it in to a bill receipt room.

[0002]

[Description of the Prior Art] Conventionally, the bill receipt equipment which contains or pays out a bill is formed in the money-changing machine and automatic vending machine which are installed in the street, the financial institution, or the recreation hall. Since a money-changing machine and an automatic vending machine need to be installed in the limited tooth space, the smallest possible thing is required.

[0003] Moreover, inside an automatic vending machine, since it must stop having to supply frequently if goods, such as a certain amount of potable water, are not contained, it is necessary to make storage space, such as goods, large as much as possible. Therefore, it is required that the bill receipt equipment built in an automatic vending machine should be small. On the other hand, a money-changing machine is adjoined and put on an automatic vending machine or a coin locker, or is put on the corner of a game device in a pachinko parlor, a game center, etc. in many cases. Therefore, also in the money-changing machine, the demand of a miniaturization is a strong thing.

[0004] In addition, as a well-known technique aiming at the miniaturization of bill receipt equipment, the equipment carried by each official report, such as JP,62-285196,A, JP,2-259983,A, and JP,4-158494,A, is known, for example.

[0005] Moreover, although the latest automatic vending machine has many which can use not only a coin but a bill, it is almost the case which can use only a thousand-yen bill as a bill. If it says from the convenience by the side of the user of an automatic vending machine, the automatic vending machine which can use the bill of all 10,000 yen, 5000 yen, and 1000 yen classes is desirable.

[0006] However, management of a supplement of a bill or recovery takes trouble to the automatic vending machine which can use the bill of all classes while the structure of equipment becomes complicated compared with the automatic vending machine only for thousand-yen bills. Furthermore, such an automatic vending machine contains the bill of all classes, and since it needs to establish the device in which this is sorted out and taken out, it cannot but become large-sized compared with the automatic vending machine only for thousand-yen bills. Therefore, although large denomination bills, such as a ten thousand yen

bill, can be exceptionally used for the automatic vending machine treating large sum goods, the usual automatic vending machine has structure which can use only a thousand-yen bill with the highest operating frequency.

[0007] On the other hand, that by which the money-changing machine which exchanges the conventional bills exchanges a ten thousand yen bill or five thousand-yen bills for a thousand-yen bill from fields, such as a degree of an exchange demand and dependability, is almost the case.

[0008] By the way, neither an automatic vending machine nor a money-changing machine asks whether the location currently installed is indoor or it is the outdoors, but is used under an uninhabited environment in many cases. For example, the location in which various automatic vending machines are brought together is also increasing in the parking area of a highway etc. recently. Moreover, since a money-changing machine and an automatic vending machine are installed for the purpose of increase in efficiency and laborsaving, it is required in the case of the payment of a bill, and payment that a trouble should be little so-called reliable equipment.

[0009] And since the object to deal with is money, high dependability is required compared with the equipment of other type. Moreover, the bills used as the object to deal with of it being a new note are rare, and there are many folds, dirt, and bills of the medieval times which occasionally have a deficit rather. And with a true ticket, the bill used is not restricted but may also have a fake bill (a foreign bill is included). Furthermore, consideration of enabling it to use the bill of all kinds needs the device in which discernment of a bill, the carrying-in appearance of a bill, and receipt are performed smoothly and exactly.

[0010] In addition, as bill receipt equipment which secures handling of a smooth bill, as shown in the official report of JP,58-117568,U, what is attained by devising arrangement of the sensor which identifies the truth of a bill is known, for example.

[0011] On the other hand, for a certain reason, in addition to the smooth nature and exact nature of bill handling, quick nature is also required also for the need for compaction of the bill processing time. For example, the equipment carried by JP,4-32992,A is known as bill receipt equipment which performs supply and receipt processing of a bill promptly.

[0012] Moreover, although there are various troubles which arise at the time of the payment of a bill or payment, the trouble which may arise very frequently is the phenomenon of the so-called jam of getting it blocked while a bill being taken out from carrying in or a receipt room at a receipt room. It becomes a factor that a bill conveyance way is narrow, that a bill is conveyed via many rollers, that a fold and dirt are in a used bill, to convey a bill at high speed, etc., and this happens in many cases.

[0013]

[Problem(s) to be Solved by the Invention] Even if the trouble of the payment of such a double feed and a different ticket, a jam, etc. does not arise frequently, the dependability of a

money-changing machine or an automatic vending machine is spoiled. Therefore, these people made it main technical problems to develop the device in which these troubles are avoided, in development of bill receipt equipment in addition to the activity of the bill of a miniaturization and varieties.

[0014] The bill receipt equipment which these people created previously was using two or more bills as usable equipment. However, since the demand of a miniaturization of equipment was not so severe, in the conveyance path from the bill conveyance section to a receipt room, there was no part which bends and conveys the direction of a bill rapidly. Therefore, smooth conveyance was possible even if it had prepared the guide member of the same immobilization as usual in the part (henceforth a "corner of a street") which bends the conveyance direction of a bill.

[0015] However, according to the demand of the latest severe miniaturization, it is becoming the situation of not obtaining a right-angled fake colander mostly, about the curvature of the above-mentioned corner of a street. If it becomes like this, in the bill receipt equipment which these people created previously, the problem that the jam of a bill is generated will have come to arise from a certain conveyance means at the corner of a street which delivers a bill to another conveyance means at the time of bill conveyance.

[0016] This invention is made that the trouble at the time of such conveyance should be solved, and aims at preventing the jam of a bill also as a path which changes the conveyance direction of a bill rapidly on the assumption that the miniaturization of equipment.

[0017]

[Means for Solving the Problem] It has the receipt room where the bill receipt equipment of this invention according to claim 1 contains a bill in view of the above-mentioned object, and the conveyance path in which a bill is conveyed, and while changing the direction of the bill conveyed into the corner of a street of a conveyance path, he is trying to prepare the moving-part material which rotates in the conveyance direction of the bill in it.

[0018] Moreover, invention according to claim 2 makes moving-part material a roller, belts, or such combination in bill receipt equipment according to claim 1.

[0019] Moreover, invention according to claim 3 makes the include angle of a corner of a street 80 to 110 degrees, and prepares a part of moving-part material in the gate arranged at a corner of a street, and he is trying to convey it in bill receipt equipment according to claim 1 or 2, pinching the bill conveyed at the gate between the conveyance means conveyed to moving-part material and moving-part material.

[0020] Moreover, it is ***** which invention according to claim 4 makes the gate the rake configuration which consists of two or more pawls in bill receipt equipment according to claim 3, and the end is fixed to the pawl of the center of two or more pawls, and, as for moving-part material, the other end is made to be fixed to a part for receipt room entrance hand anterior part.

[0021] Moreover, he is trying for invention according to claim 5 to classify a receipt room into plurality in bill receipt equipment according to claim 3 or 4 according to the class of bill.

[0022] Moreover, in bill receipt equipment according to claim 5, invention according to claim 6 classifies a receipt room in the vertical direction, establishes one conveyance means common to the flank of the classified receipt room, considers as the gate which fixed the bottom gate at the bottom of a conveyance means in the state of open, and is made to be taken as the gate which can open and close the gates other than the bottom gate freely.

[0023] thus, the direction which conveys the bill in the corner of a street of the bill conveyance section while changing the conveyance direction of a bill -- a revolution -- by preparing movable moving-part material, there is no connection etc., and it can convey smoothly, changing the conveyance direction of a bill. When considering as the small equipment handling two or more bills, a conveyance path is mostly used as a right angle, and it must be made to convey a bill in a receipt room. In this case, existence of the above moving-part material becomes important especially.

[0024] Moreover, since this moving-part material pinches with the conveyance means of the bill conveyance section and conveys a bill, in a corner of a street, it turns a bill compulsorily and conveyance of it is attained at a receipt room.

[0025]

[Embodiment of the Invention] Below, the gestalt of operation of this invention is explained.

[0026] (1) It is [0027] about the structure of the whole equipment. Drawing 1 is a block diagram showing the configuration of the whole bill receipt equipment concerning this invention.

[0028] This bill receipt equipment has structure to which the bill discernment section 100 and a side face were equipped with the bill conveyance section 200, and it equipped the topmost part with the ejection rejection section 400 at the bottom between the bill stowage 300, and the bill discernment section 100 and the bill stowage 300. Moreover, although not shown in drawing 1, it also has the control section 500 which controls bill receipt equipment (about the detail of a control section 500, it mentions later).

[0029] The bill discernment section 100 is a part which identifies the truth and the class of bill 1 paid in from the slot for bills 101, and conveys a bill 1 in the bill conveyance section 200. The bill discernment section 100 consists of standby section 100b temporarily which is made to stand by temporarily until receipt preparation completes the bill detected as detection section 100a which detects a bill by various kinds of sensors.

[0030] The bill conveyance section 200 is a part which performs payment actuation which conveys a bill 1 from the bill discernment section 100 to the bill stowage 300 by actuation of the conveyance belt by revolution of the stepping motor which was formed in the lower part of equipment, and which is not illustrated, and payment actuation which conveys a bill 1 from the bill stowage 300 to the ejection rejection section 400.

[0031] The bill stowage 300 has composition which loaded the receipt room (a receipt room is henceforth called "stacker") which can contain three sorts of bills 1 according to an individual up and down. Specifically, the bill stowage 300 consists of stacker 300for thousand-yen bills a, stacker 300for 5 thousand-yen bills b, and stacker 300for ten thousand yen bills c from the top. Since there are most receipts and payments of a bill, stacker 300a for thousand-yen bills has biggest capacity.

[0032] The ejection rejection section 400 is a part which enables it to pick out a bill 1 from the bill payment opening 401 while receiving a bill 1 via the bill conveyance section 200 from the bill stowage 300. The ejection rejection section 400 consists of rejection section 400b which saves ejection section 400a which performs payment actuation which contributes a true ticket, and the different ticket, the double feed bill and counterfeit currency which exist in a payment bill. Ejection section 400a is a part which bundles up and performs payment actuation after suspending until it becomes the number of sheets which should contribute the conveyed bill 1. Moreover, rejection section 400b is a part which is made not to invest money by saving the different ticket discovered at the time of payment actuation in distinction from the bill 1 of normal.

[0033] The control section 500 is formed in the background (it is a flesh side to the space of drawing 1) of the bill discernment section 100, the ejection rejection section 400, and the bill stowage 300.

[0034] Drawing 2 is the block diagram having shown the configuration of a control section 500. A control section 500 is a part which carries out electronics control of the bill discernment section 100, the bill conveyance section 200, the bill stowage 300, and the ejection rejection section 400. The control section 500 consists of arithmetic and program control (CPU) 501, discernment section MPU501a, read-only memory (ROM) 502, a store (RAM (1) 503 RAM(2) 504) in which read-out and writing are possible, a display 505, and a test switch 506. Discernment section MPU501a is a part which is recording bill data required for discernment of the bill in the bill discernment section 100, and collates with the data detected by the sensor.

[0035] Moreover, a power supply section 507 and the external communications department 508 are established in bill receipt equipment. An exchange of a signal is possible among the high order machine control units 509 which incorporated bill receipt equipment and the equipment concerned by the external communications department 508, such as a bill exchanger and an automatic vending machine. Moreover, it is also possible to constitute the high order machine control unit 509 possible [other host computers and a communication link] depending on the need. Many sensors and motors are in this bill receipt equipment (both details are mentioned later), and it has structure which can control actuation of conveyance of a bill 1 etc. to a precision through a control section 500.

[0036] Moreover, the bill storing section door 600 with a key mentioned later is formed in the

side front (it is a side front to the space of drawing 1) of this bill receipt equipment (it mentions later for details), and it can open and close in the case of the inspection at the time of recovery of a bill 1, or a supplement or failure.

[0037] Drawing 3 is drawing having shown the whole bill receipt equipment structure in the gestalt of this operation. As shown in this drawing, a slot for bills 101 and the bill payment opening 401 are approached and formed in the upper part of equipment. Therefore, while being able to prevent a failure of a bill 1 to take, it is easy to use for a user.

[0038] Moreover, the bill stowage 300 has from the top structure loaded in order of stacker 300for thousand-yen bills a, stacker 300for 5 thousand-yen bills b, and stacker 300c for ten thousand yen bills. That is, the stacker of the bill 1 with the highest operating frequency is arranged in the location near a slot for bills 101 and the bill payment opening 401. Therefore, in dealings of the usual bill 1, quick close payment actuation is possible. In addition, the stowed position of each bill 1 can change that location suitably by the device by which this bill receipt equipment is incorporated. For example, it is good also as 10,000 yen, 1000 yen, and 5000 yen in considering as 1000 yen, 10,000 yen, and 5000 yen from the upper part at order.

[0039] (2) It is [0040] about the bill discernment section. Drawing 4 and drawing 5 are the sectional views seen from the side face and top face of the bill discernment section 100, respectively. The bill discernment section 100 consists of standby section 100b temporarily which makes a bill 1 stand by temporarily until receipt preparation of a bill 1 is completed, when it is detection section 100a and the true ticket which detect the truth and the class of bill 1 by various sensors.

[0041] Standby section 100b has structure which the upper parts 100c and 100d which serve as a lid respectively can open and close independently detection section 100a and temporarily. Therefore, inspection or repair is easy in the case where a trouble occurs at the time of the payment of a bill 1, or the case of a maintenance. The slot for bills 101 which pays [1] in is formed in the entrance side of the bill discernment section 100. Moreover, each sensor of the inlet-port sensor 102, the optical type discernment sensor 103,104, the magnetic formula discernment sensor 105, the drawing prevention liver-sensor 106, and the termination sensor 107 is formed in the interior of detection section 100a.

[0042] The structure and the function of each sensors 102, 103, and 104,105,106,107 are as follows. That is, the inlet-port sensors 102 are the ends of detection section 100a, and are formed in every one location each which can detect the both ends of the cross direction of the inserted bill 1. It judges with counterfeit currency that the bill 1 with narrow width of face is inserted, and counterfeit currency is returned by this. In addition, this inlet-port sensor 102 has the role which sends the signal which operates the discernment section conveyance motor 108 and an electromagnetic clutch 109.

[0043] The inlet-port sensor 102 is a photosensor of a transparency mold, and consists of a

light emitting device prepared in the bill insertion path upside (detection section up 100c) of detection section 100a, and a photo detector prepared in the body side used as the bottom. The inlet-port sensor 102 detects the bill 1 paid in from the slot for bills 101.

[0044] The optical type discernment sensor 103,104 is further formed in the interior from the inlet-port sensor 102, in view of the slot for bills 101. detection section 100a -- two sensors [a total of three] are mostly formed in the center from one piece and its location to the ends of back detection section 100a. The central light type discernment sensor 103 formed in the center is an infrared sensor which used infrared radiation.

[0045] Moreover, the flank light type discernment sensor 104 formed in the flank is a visible-ray sensor which used the light. It consists of the light emitting devices and photo detectors which have been arranged at the bottom used as upside 100c from which any optical type discernment sensors 103,104 are the inlet-port sensor 102 and same transparency mold sensor, and serve as a lid, and a body. Thus, using two kinds of light, infrared radiation and a visible ray, is based on the following reason. When the light from which wavelength differs is used, wave patterns differ. Therefore, the truth and the class of bill 1 can be double-checked. Therefore, it is because it becomes identifiable about a bill at accuracy.

[0046] The magnetic formula discernment sensor 105 is the detection section 100a bottom, and is formed in two locations almost level in the central light type discernment sensor 103 seen from the upper part of equipment. The magnetic type discernment sensor 105 is a sensor which reads the magnetic pattern of the bill 1 to pass. The magnetic formula discernment sensor 105 reads a magnetic pattern in the magnetic substance currently printed by the bill which passes through a sensor top, and is identifying the truth and the class of bill 1. Thus, the class and truth of a bill 1 are identified by accuracy by three optical type discernment sensors 103,104 and two magnetic formula sensors 105.

[0047] The drawing prevention liver-sensor 106 is an optical cutoff mold sensor which detects the existence of a bill 1, and is formed in detection section up 100c. If a bill 1 draws out and it rides on the prevention lever 112, it draws out, and the prevention lever 112 will descend and will separate from the location for which the light of the drawing prevention liver-sensor 106 was intercepted and which was intercepting the drawing prevention liver-sensor 106.

[0048] Then, if the back end of a bill 1 draws out and it passes prevention lever 112, this lever 112 will start and the drawing prevention liver-sensor 106 will be intercepted again. By this, the drawing prevention liver-sensor 106 becomes off. Thus, sampling of a bill can be prevented when the drawing prevention lever 112 starts.

[0049] The termination sensor 107 is a photosensor of a transparency mold, and if the back end of a bill 1 passes the termination sensor 107, when the discernment section conveyance motor 108 stops, the conveyance belt 113 will suspend it. Therefore, a bill 1 will stand by to standby section 100b temporarily. This is for not conveying a bill 1 until payment preparation

of the bill conveyance section 200 and the bill stowage 300 is completed.

[0050] In addition, the termination sensor 107 will turn OFF an electromagnetic clutch 109, if the termination of a bill 1 is detected. Therefore, when the bill 1 is standing by to standby section 100b temporarily, even if the next payment is performed from a slot for bills 101, the conveyance belt 114 is not driven. Moreover, this termination sensor 107 consists of the light emitting devices and photo detectors which are arranged like the photosensor of other transparency molds at detection section 100a an upside and the bottom.

[0051] The body side used as the detection section 100a bottom is equipped with two conveyance belts 114 stretched by the roller 115,116, respectively. Six rollers 117 are formed in a total of six places of the location which counters each roller 115,116 at a detection section 100a upside, and the location which counters each magnetic type discernment sensor 105. If a bill 1 drives in the payment direction with the conveyance belt 114, a roller 117 follows to migration of a bill 1, and is pivotable.

[0052] A roller 116 is pivotable through the output pulley 119, a belt 120, KURATCHIPU-Li 121, a gear 122, a gear 123, and a gear 124, if it has connected with the shaft 118, the discernment section conveyance motor 108 rotates and an electromagnetic clutch 109 is turned on. And the conveyance belt 114 is pivotable in payment or the payment direction by revolution of a roller 116.

[0053] In addition, the discernment section conveyance motor 108 is the motor which carries out a constant-speed revolution. Thus, the discernment section conveyance motor 108 is formed in the bill discernment section 100 as a motor which became independent of the stepping motor 700 mentioned later. Therefore, even if it is the case of continuation payment, insertion of the following bill 1 is attained to standby section 100b [payment actuation of the bill 1 inserted previously] temporarily. Therefore, it is possible to perform payment actuation of a bill 1 promptly.

[0054] Two conveyance belts 113 stretched by the roller 125 and the roller 126 are formed in the standby section 100b bottom temporarily. Moreover, two conveyance belts 130 stretched by each roller 127,128,129 are formed in the standby section 100b upside temporarily. A bill 1 is pinched by two conveyance belts 113 and two conveyance belts 130, and it enables it to convey it. The conveyance belt 113 is connected with the discernment section conveyance motor 108 through the output pulley 119, the output pulley 131, the belt 132, the actuation roller 133, and the roller 126, and is pivotable in the payment direction.

[0055] (3) It is [0056] about the bill conveyance section. Next, the structure of the bill conveyance section 200 is explained. Drawing 6 , drawing 7 , and drawing 8 are the sectional views seen from the perspective view in the condition of having opened the conveyance way door section 201 of the bill conveyance section 200, the sectional view seen from the side face and the slot for bills 101, and the opposite direction. Two conveyance belts 202 are stretched by two rollers 203, 204, and 205,206,207,208 each installed inside the conveyance

way door section 201. A roller 203 is driven in response to a revolution through the gear which is not illustrated from the stepping motor 700 shown in drawing 8 .

[0057] In addition, let the stepping motor 700 be a motor pivotable in forward reverse both directions with the signal from CPU501 in a control section 500. That is, the hand of cut of a stepping motor 700 is changed by the time of the payment of a bill 1, and payment.

[0058] Therefore, the conveyance belt 202 can convey the bill 1 in the bill conveyance section 200 in vertical both directions by the hand of cut of the roller 203 connected with the stepping motor 700. With the gestalt of this operation, the miniaturization of the whole bill receipt equipment is in drawing by making payment actuation and payment actuation of a bill 1 into the same conveyance path.

[0059] moreover, the rotational speed of a stepping motor 700 -- close -- it is changing at a sweet potato or the time of the rejection mentioned later. Namely, at the time of payment, rather than the passing speed of the conveyance belt 113 of standby section 100b, the stepping motor 700 is rotated temporarily so that the passing speed of the conveyance belt 202 of the bill conveyance section 200 may become quick.

[0060] The bill 1 pay in is smoothly sent into the bill conveyance section 200 by this. The rotational speed of a stepping motor 700 has 1 to 3 of the rotational speed of the discernment section conveyance motor 108 desirable times, and its twice are especially desirable. In addition, in the case of payment, even if the same [in the passing speed of the conveyance belt 113 and the conveyance belt 202] depending on the need, it is good.

[0061] On the other hand, in the case of rejection processing, passing speed of the conveyance belt 202 is made later than the passing speed of the conveyance belt 113. That is, he is trying to rotate a stepping motor 700 rather than the rotational speed of the discernment section conveyance motor 108 at a low speed. The rotational speed of a stepping motor 700 has 0.2 to 0.9 of the rotational speed of the discernment section conveyance motor 108 desirable times, and 0.5 to 0.8 is especially desirable. In addition, it is better than the passing speed of the conveyance belt 113 also as a high speed in the passing speed of the conveyance belt 202 also at the time of payment. About the structure of the above-mentioned stepping motor 700, it mentions later.

[0062] Two conveyance belts 210,211,212,213 each and two rollers 214, 215, 216, 217, 218, 219, 220, 221, and 222,223,224,225 each are formed in the body side of bill receipt equipment of the bill conveyance section 200. Unlike the conveyance belt 202, the conveyance belt 210,211,212,213 is separately formed in every not one long belt but stacker 300a and 300b for [various] bills, and 300c. This is because conveyance of a bill 1 to each stackers 300a, 300b, and 300c is enabled.

[0063] Moreover, the direct drive of the conveyance belt 210,211,212,213 is not carried out from a stepping motor 700, but it follows to actuation of the conveyance belt 202, and rotates. By this, while being able to lessen the number of a conveyance motor, the conveyance way

door section 201 whose closing motion is enabled can be made into simple structure.

[0064] The ejection conveyance gate 226 is established in bill conveyance opening of the ejection rejection section 400 in the bill conveyance section 200, and the location which counters. The ejection conveyance gate 226 has clockwise structure in which open Lycium chinense is possible in drawing 7 so that the bill 1 which has gone via the bill conveyance section 200 from each stackers 300a, 300b, and 300c can be incorporated.

[0065] The ejection conveyance gate conveyance gate 231 of 226 or 1000 yen and the 5000 yen conveyance gate 261 serve as a device opened when the IJIEKUTOGE-TOSORENOIDO gate solenoid 232 of 227 or 1000 yen and the 5000 yen gate solenoid 262 are turned on, respectively. When payment or a payment signal is sent from CPU501, specifically, it opens.

[0066] Here, the 1000 yen conveyance gate 231 at the time of conveying a thousand-yen bill from the bill conveyance section 200 to stacker 300a for thousand-yen bills is taken for an example, and the closing motion device of the gate is explained. In addition, the conveyance gate 261 has the same structure and the same device as the conveyance gate 231 of 1000 yen of 5000 yen. Therefore, suppose that the number of each part material corresponding to the back of the number of each part material which participates in the closing motion device of the conveyance gate 231 1000 yen in the conveyance gate 261 of 5000 yen is expressed with parenthesis writing.

[0067] As shown in drawing 7, the conveyance gate 231 (261) of 1000 yen of 1000 yen is connected with the gate solenoid 232 (262) through an arm 233 (263), the arm 234 (264), the arm 235 (265), the arm 236 (266), and the arm 237 (267). With the payment signal from a control section 500, if the gate solenoid 232 (262) is turned on 1000 yen, an arm 237 (267) can pull up, an arm 236 (266) will carry out rotation migration in drawing 7 on the right, and an arm 235 (265) and an arm 234 (264) will move to the right in drawing 7. By this, an arm 233 (263) is pulled by the arm 234 (264), and the conveyance gate 231 (261) opens 1000 yen.

[0068] Here, if the gate solenoid 232 (262) is turned on 1000 yen, the magnet 238 (268) with which the edge of an arm 236 (266) was equipped will lap with the 1000 yen conveyance gate sensor 239 (269) which is a hall sensor. The signal which tells what the conveyance gate 231 (261) opened 1000 yen for by this is sent to a control section 500. Then, a bill 1 is conveyed through the bill conveyance section 200 by stacker 300a for thousand-yen bills (300b).

[0069] In addition, also when IJIEKUTOGE-TOSORENOIDO 227 is turned on, a control section 500 receives the signal which tells what the ejection conveyance gate 226 opened because a magnet 228 laps with IJIEKUTOGE-TOSENSA -229.

[0070] Moreover, if the gate solenoid 232 (262) is turned off 1000 yen, with the spring (henceforth a "Rita-NTO-SHON spring") 260 (290) shown in drawing 8, an arm 233 (263) will carry out rotation migration in drawing 7 on the left, and the conveyance gate 231 (261) will be closed 1000 yen. In connection with this, an arm 234 (264) and an arm 235 (265) move to the left in drawing 7. And an arm 236 (266) carries out rotation migration in drawing

7 on the left, and a magnet 238 (268) separates from the 1000 yen conveyance gate sensor 239 (269) as a hall sensor.

[0071] The signal which tells what the conveyance gate 231 (261) closed 1000 yen for by this is sent to CPU501 of a control section 500. In addition, also when

IJIEKUTOGE-TOSORENOIDO 227 becomes off, the ejection conveyance gate 226 closes with the Rita-NTO-SHON spring 230. Under the present circumstances, when a magnet 228 separates from IJIEKUTOGE-TOSENSA -229, the signal which tells what the ejection conveyance gate 226 closed CPU501 for is received.

[0072] The 10,000 yen conveyance gate 291 at the inlet port of stacker 300c for ten thousand yen bills is in the bottom of the bill stowage 300. Since there is no bill 1 which passes this gate 291, the 10,000 yen conveyance gate 291 is being fixed in the condition of having always opened. By this, the gate solenoid which drives the conveyance gate 291 of 10,000 yen becomes unnecessary, and can attain the miniaturization of bill receipt equipment, and the simplification of structure.

[0073] Drawing 9 and drawing 10 are the perspective views which looked at the 1000 yen conveyance gate 231 of an open condition from the interior of stacker 300a. Here, drawing 10 is drawing having omitted and shown the member acting as [in order to clarify circumference structure of this gate 231] a failure from drawing 9 . In addition, since the 5000 yen conveyance gate 261 also has the same structure as the conveyance gate 231 of 1000 yen, suppose it that the number [of 5000 yen] of the each member of the conveyance gate 261 of 1000 yen is expressed with parenthesis writing behind the number of each part material of the conveyance gate 231.

[0074] The 1000 yen conveyance gate 231 (261) is the gate of the rake configuration which consists of each three pawls 231a (261a), 231b (261b), and 231c (261c). And each pawl can contain now in the location which adjoins each other the conveyance belt 211 (212) and by turns. As shown in drawing 10 , the background of central pawl 231a (261a) is equipped with the belt 244 (274) as moving-part material stretched by each rollers 240 (270), 241 (271), and 242 (272).

[0075] Moreover, it does as a roller 240 (270) and a roller 242 (272), and the location of roller 242 (272) approach is equipped with the roller 249 (279). It has the roller 249 (279) so that a belt 244 (274) may be pushed from rollers 240 (270) and 242 (272) and an opposite hand.

[0076] On the other hand, when the conveyance gate 231 (261) of 1000 yen is closed, every one belt 245 (275) is formed in the location which laps with the background of pawl 231b (261b) and pawl 231c (261c), respectively. Each belt 245 (275) is stretched with each rollers 246 (276), 247 (277), and 248 (278).

[0077] Moreover, the shaft 250 (280) pierces through a roller 241 (271) and two rollers 247 (277) located in the both sides. the same -- a roller 242 (272) and two rollers 248 (278) -- a shaft 251 (281) -- moreover, the shaft 252 (282) pierces through a roller 243 (273) and two

rollers 246 (276), respectively. Furthermore, the shaft 253 (283) pierces through a roller 249 (279) and two rollers 219 (222) located in the both sides. However, a roller 249 (279) is connected at a shaft 253 (283) and a bearing, and synchronizes with the driving force of a belt 244 (274) instead of actuation of a shaft 253 (283). Two rollers 219 (222) are wound around the conveyance belt 211 (212) as shown in drawing 9.

[0078] The conveyance belt 211 (212) rotates in response to actuation from a stepping motor 700. For this reason, if a stepping motor 700 rotates and the conveyance belt 211 (212) drives in the payment direction, actuation will be simultaneously received from a stepping motor 700, and two belts 245 will rotate in the payment direction.

[0079] By this, a shaft 250 (280) and each rollers 247 (277) and 241 (271) will rotate, and belts 244 (274) and 245 (275) will rotate in the payment direction. In addition, a roller 249 (279) rotates in the payment direction by contacting a belt 244 (274).

[0080] In addition, since two belts 245 (275) do not touch the conveyance belt 211 (212), in case a bill 1 is conveyed by stacker 300a (300b) from the 1000 yen conveyance gate 231 (261), the both ends of a bill 1 are led to the hand of cut of a belt 245 (275). Moreover, the head center section of the bill 1 will be pinched by a roller 249 (279) and the belt 244 (274).

[0081] Hereafter, a bill 1 passes along the conveyance way of the bill conveyance section 200, and explains the actuation in which it is conveyed by stacker 300a. In addition, suppose from this that 1000 yen is not shown by parenthesis writing behind the number of the configuration member of the conveyance gate 231 about each configuration member of the 5000 yen conveyance gate 261.

[0082] First, the bill 1 conveyed by actuation of the conveyance belt 202 and the conveyance belt 211 contacts the belt 244 which is rotating in the payment direction. And a bill 1 receives actuation of a belt 244 and can change a direction compulsorily to the contact part of a belt 244 and a roller 249. Next, a part for the center section at the head of a bill 1 is conveyed inside stacker 300a, being pinched between a belt 244 and a roller 249. In addition, the include angle of the corner of a street of the conveyance path at this time is mostly used as the right angle.

[0083] The both sides at the head of a bill 1 are led to the hand of cut of two belts 245 which are rotating in the payment direction, and turn to the direction of the interior of stacker 300a. By this actuation, a bill 1 is conveyed to stacker 300a.

[0084] On the other hand, it is fixed, where the 10,000 yen conveyance gate 291 is a configuration which consists only of a central pawl and is opened. And the belt as moving-part material is prepared also in the background of a central pawl. In case a ten thousand yen bill is conveyed through a conveyance path by stacker 300c for ten thousand yen bills, the amount of [of the head of a bill 1] center section contacts the belt as this moving-part material, and it can change a direction compulsorily.

[0085] Thus, even if a bill 1 is the conveyance path which bends and goes into each stackers

300a, 300b, and 300c mostly from the bill conveyance section 200 at a right angle by preparing a belt etc. in the background of each conveyance gate 231,261,291, it has lifting-come to be hard of a jam. In addition, one of the approaches for preventing a jam is making it not bend the conveyance path of a bill 1 rapidly.

[0086] However, if it does in this way, bill receipt equipment will be enlarged. For this reason, with the gestalt of this operation, the miniaturization of equipment is attained by using the conveyance path of a bill 1 as a right angle mostly, and utilizing a roller etc. effectively. In addition, if this moving-part material is adopted, it can respond also to the steep corner of a street of 90 or less degrees, but when the possibility of a jam etc. is taken into consideration, 80 degrees or more are desirable. Moreover, if a corner of a street becomes 110 or less degrees, the importance of moving-part material will clarify. That is, when a guide fixed [conventional] is adopted, a jam etc. will become easy to happen if the include angle of a corner of a street turns into 110 or less degrees. When moving-part material is prepared, a jam etc. stops on the other hand, generating.

[0087] The conveyance way sensor 255 shown in drawing 8 and the conveyance way door sensor -256 shown in drawing 6 are formed in the bill conveyance section 200. The conveyance way sensor 255 is a photosensor of a reflective type. The reflected light in which the light emitted from the conveyance way sensor 255 reflected this sensor 255 on bill 1 front face can be detected now. And if a bill 1 exists in the location of the conveyance way sensor 255, a signal will be sent to a control section 500 and it will be made to operate about closing motion of the gate etc.

[0088] The conveyance way door sensor -256 is a contact-type sensor, and a contact is canceled in the conveyance way door 201 in the open beam case, and it sends a signal to a control section 500. As for the carrier beam CPU 501, actuation of conveyance belt 202 grade is made not to perform the signal. It is for securing insurance to the midst which is performing clearance of the bill 1 which opened the conveyance way door 201 and raised the jam, or inspection of equipment, when making it conveyance belt 202 grade not drive.

[0089] (4) It is [0090] about a bill stowage. Next, the structure of the stacker which constitutes the bill stowage 300 is explained. In addition, stacker 300for thousand-yen bills a, stacker 300for 5 thousand-yen bills b, and stacker 300c for ten thousand yen bills are the same structures except that capacity differs. Then, on behalf of each stackers 300a, 300b, and 300c, the structure and the function of stacker (henceforth, unless reference is made especially, it is called "stacker") 300a for thousand-yen bills are explained.

[0091] Drawing 11 is the perspective view of stacker 300a which constitutes the bill stowage 300. The stack inlet-port upper roller 302 and the stack inlet-port lower roller 303 are formed in the bill conveyance opening 301 of stacker 300a. Two of these rollers 302,303 are respectively prepared in the location which counters mutually. Moreover, it has these rollers 302,303 crosswise [of a bill 1] at spacing respectively narrower than a bill 1. A conveyance

belt is not wound around the stack inlet-port lower roller 303, but the conveyance belt 304 is wound around the stack inlet-port upper roller 302.

[0092] The stack inlet-port upper roller 302 is connected with the gear 306 through the shaft 305. Forward counterrotation is possible for a gear 306 by revolution of the stepping motor 700 shown in drawing 8 so that it may mention later. Therefore, a bill 1 is pinched by the conveyance belt 304 and the stack inlet-port lower roller 303, and is conveyed to the interior or the exterior of stacker 300a.

[0093] It is prepared in the location where the stack inlet-port sensor 307 which detects passage of a bill 1 separates the bill conveyance opening 301 to the bill conveyance opening 301, and counters it. The stack inlet-port sensor 307 is an optical type sensor of a transparency mold, and consists of a light emitting device and a photo detector. 2 sets of stack inlet-port sensors 307 which consist of both these components are arranged by width of face narrower than a bill 1. Light emitting device (it is henceforth called "bottom sensor of stack inlet port") 307b of the stack inlet-port sensor 307 is prepared in the underside of the bill conveyance opening 301. Photo detector (it is henceforth called "stack inlet-port top sensor") 307a of this sensor 307 is prepared in the side same as the above. If a bill 1 exists among these sensors 307a and 307b, light is interrupted and existence of a bill 1 can be detected. Moreover, the stack inlet-port sensor 307 has the function which measures the quantity of light pattern which penetrates the die length of a bill 1, and a bill 1, in case a bill 1 passes.

[0094] Drawing 12 is the enlarged drawing which saw the stack inlet-port sensor 307 from the side face of the bill conveyance opening 301. The stack inlet-port sensor 307 is covered with the sensor-coverings 308a and 308b made so that the amount of the pair Kohei surface part might become the top face and underside, and horizontal of the bill conveyance opening 301. When the stack inlet-port sensor 307 is polluted with the dirt of a bill 1, discernment of the exact bill 1 becomes impossible. Therefore, it is necessary to clean the dirt carried in by the bill 1. Although it is also possible to establish a special cleaning device, it can be made to carry out by other bill 1 selves self-cleaning of the sensor-coverings 308a and 308b to this bill receipt equipment in order to avoid complication of structure.

[0095] Specifically, self-cleaning is realized by making the clearance between the up-and-down sensor-coverings 308a and 308b into a moderate distance. Although a bill 1 is frequent to upper sensor-covering 308a, he is trying not to always touch it, while it always touches downward sensor-covering 308b. That is because a jam will become easy to happen if the direction of downward sensor-covering 308b makes it as narrow as a bill 1 always touches on dirt or a cone at upper sensor-covering 308a. 2.0-3.0mm is suitable for the distance between both sensors-covering 308a and 308b, and it is preferably good. [of 2.3-2.7mm] The still more nearly optimal width of face is 2.4-2.5mm.

[0096] The conveyance device section 309 which conveys a bill 1 within and without stacker 300a is being fixed to the upper part of stacker 300a.

[0097] Drawing 13 is the perspective view of stacker 300a in the condition of having removed the conveyance device section 309. Three separation rollers 310 are formed in the back from the stack inlet-port lower roller 303. In case a bill 1 is received by the interior of stacker 300a, the stack inlet-port upper roller 302 and each separation roller 310 drive in the payment direction. The stack inlet-port lower roller 303 is rotated in the payment direction by conveyance of a bill 1. A bill 1 is conveyed inside stacker 300a by this.

[0098] Moreover, in case a bill 1 is taken out from the interior of stacker 300a, in response to actuation of a stepping motor 700, the stack inlet-port upper roller 302 rotates in the payment direction. Therefore, the conveyance belt 304 wound around the stack inlet-port upper roller 302 rotates in the payment direction. Under the present circumstances, the separation roller 310 can be rotated no longer in the payment direction. Specifically, the gear 319 connected with the separation roller 310 is equipped with the one-way clutch which transmits actuation, only when rotating in the payment direction. Thus, it is based on the following reason that the separation roller 310 prevented from rotating in the payment direction. In case the bill 1 contained inside stacker 300a is taken out outside, two or more bills may move along the roller side of the separation roller 310 together. In this case, it is because there is a danger that even the bill conveyance opening 301 will be conveyed and a double feed will also produce the 2nd [or less] bill when the separation roller 310 rotates in the payment direction.

[0099] The roller guide 311 is formed in the bill receipt direction side of the separation roller 310 so that a roller side may be met. Drawing 14 is some enlarged drawings inside stacker 300a equipped with the roller guide 311. The screw stop of the end of a roller guide 311 is carried out to the outer wall of stacker 300a, and the separation roller 310 and attachment and detachment are possible for it.

[0100] In case a bill 1 is taken out from stacker 300a, the bill 1 contained pushes a roller guide 311 in the direction of the separation roller 310 in response to actuation of the conveyance belt 304 and the conveyance belt 312 mentioned later. The pushed roller guide 311 touches the roller side of the separation roller 310. Therefore, from the separation roller 310, the bill 1 taken out goes caudad, breaks, and a jam is raised.

[0101] Moreover, a roller guide 311 can adjust height now in the vertical direction by adjusting the fixed screw which is not illustrated. Furthermore, the distance of a roller guide 311 and the separation roller 310 can be adjusted with the die length which an adjusting screw 313 thrusts. If an adjusting screw 313 is screwed in, specifically, the upper bed of a roller guide 311 will approach the separation roller 310. On the other hand, if an adjusting screw 313 is loosened, the upper bed of a roller guide 311 will separate from the separation roller 310. The height of a roller guide 311 and distance with the separation roller 310 can be adjusted seeing the situation that the double feed or jam in the case of payment actuation happens by this.

[0102] Drawing 15 is the side elevation of stacker 300a. Moreover, drawing 16 is the top view

which saw stacker 300a from the upper part of bill receipt equipment. The conveyance device section 309 is respectively equipped with two conveyance belts 304,312 at a time. Every two conveyance belts 304,312 each are made into the condition of having exposed the belt to the underside of the conveyance device section 309.

[0103] Two conveyance belts 304 are stretched by the stack inlet-port upper roller 302 and the roller 314. And between the conveyance belts 304, two conveyance belts 312 stretched by three rollers 315,316,317, respectively are formed. Moreover, the gear 306 and the gear 319 mesh mutually, as shown in drawing 16. In response to the actuation from a stepping motor 700, forward counterrotation is possible for a gear 319.

[0104] Two friction rollers 320 with a path smaller than the separation roller 310 are formed in the outside of the separation roller 310 so that the conveyance belt 304 may be touched. A friction roller 320 is a roller which rotates in response to actuation of the conveyance belt 304 at the time of the payment of a bill 1, and is being fixed to the roller fixed disk 321 with which the outside of the separation roller 310 was equipped pivotable. Furthermore, it has the roller fixed disk 321 rotatable centering on the shaft 318 which are the separation roller 310 and the same axle.

[0105] Furthermore, as shown in drawing 17, the engagement supporting point 322 on the disk 321 concerned and stacker 300a are connected with the spring 323, and the friction roller 320 is energized up. Therefore, a friction roller 320 is a constant pressure and contacts rotation within the limits at the conveyance belt 304. The following effectiveness is acquired by forming this friction roller 320.

[0106] That is, in payment actuation of a bill 1, it is possible to return easily the bill 1 which jumped out in the direction of the separation roller 310 to the interior of stacker 300a by order actuation mentioned later. In addition, in case the bill 1 with which the head has broken is contributed, a friction roller 320 corrects a crease of the head of a bill 1, and it is possible to invest money. Moreover, although two or more bills 1 enter between a friction roller 320 and the conveyance belt 304 temporarily, since the pressure which joins a bill 1 becomes fixed, it does not require the pressure beyond the need for a bill 1. For this reason, a double feed and the trouble of a jam can be prevented.

[0107] Drawing 17 is drawing which saw the condition at the time of a bill 1 being taken out from stacker 300a from the direction of the bill conveyance opening 301. The top face of a bill 1 is in contact with the conveyance belt 304 wound around the stack inlet-port upper roller 302, and the conveyance belt 312 wound around the roller 317. Moreover, the underside of a bill 1 is in contact with the separation roller 310 and the friction roller 320.

[0108] The conveyance belt 304,312 is arranged so that it may be caudad located rather than the roller top face of the separation roller 310. Therefore, in the case of payment, a bill 1 is taken out from stacker 300a in a wave configuration, as shown in drawing 17.

[0109] Drawing 18 is the internal structure of stacker 300a seen from the direction of the bill

conveyance opening 301. The interior of stacker 300a is equipped with the loading plate (it is henceforth called a "pusher-plate") 325 which can move the interior of stacker 300a up and down while loading a bill 1. Moreover, the pars basilaris ossis occipitalis of stacker 300a is equipped with the plate hook 346 for hooking the pusher-plate 325 and fixing. About the operating condition of the plate hook 346, it mentions later.

[0110] Drawing 19 is drawing having extracted and shown the pusher-plate 325 and its actuator from drawing 18. Plate connection section 325c which is a part of pusher-plate 325 is connected with flank plate connection section 327a of the flank plate 327 fixed to the flank of stacker 300a through the elastic body (it is henceforth called a "pusher-spring") 326 so that it may be illustrated. The pusher-spring 326 is bent in the shape of Uth reverse so that the slot prepared in accordance with the periphery of the disk 328 fixed to stacker 300a may be touched. The pusher-spring 326 is connected with stacker 300a so that the pusher-plate 325 may be energized up.

[0111] The pusher-plate 325 consists of fixed pusher-plate 325a connected with the pusher-spring 326, and working pusher-plate 325b which the cross direction of a bill 1 makes rockable up and down while being located on fixed pressure-plate 325a. Under the fixed pusher-plate 325a, as shown in drawing 18, the shaft 329 is being fixed crosswise [of a bill 1]. The upper part of a shaft 329 is equipped with the shaft 330 extended to the lengthwise direction of fixed pusher-plate 325a. Working pusher-plate 325b is connected with the shaft 330 through the connecting plate 331 fixed to this plate 325b. A connecting plate 331 is rotatable centering on a shaft 330.

[0112] Drawing 20 is drawing having shown splash actuation of working pusher-plate 325b. (A) is drawing in which the plate side of working pusher-plate 325b showed the condition of fixed pusher-plate 325a and parallel. In being almost equal, as shown in (A), the plate side of working pusher-plate 325b is [thickness a at the right end of the loaded bill 1, and left end thickness b] level.

[0113] However, the thickness of the loaded bill 1 is not necessarily regularity. (B) is drawing having shown the condition with the left end thicker thickness b rather than thickness a at the right end of the loaded bill 1. If the top bill 1 of a bill 1 touches the conveyance belt 304,312 so that it may be illustrated, a connecting plate 331 will rotate to the clock and opposite direction of a shaft 330. Consequently, the top bill 1 becomes possible [touching the conveyance belt 304,312 in the level condition].

[0114] Moreover, (C) is drawing having shown the condition with the left end thinner thickness b rather than thickness a at the right end of the loaded bill 1. If the top bill 1 of a bill 1 touches the conveyance belt 304,312 so that it may be illustrated, a connecting plate 331 will rotate to the clockwise rotation of a shaft 330. Consequently, the top bill 1 becomes possible [touching the conveyance belt 304,312 in the level condition] like (B).

[0115] Thus, even if the thickness of the bill 1 by which a laminating is carried out on

working pusher-plate 325b is in a condition uneven [the cross direction of a bill 1], it becomes possible to touch the conveyance belt 304,312 in the stacker 300a upper part by the uniform pressure. Therefore, money is bent and invested, and a bill 1 does not come and can prevent a jam. Moreover, even if fixed pusher-plate 325a and the conveyance belt 304,312 are not parallel strictly, a uniform pressure will be applied to a bill 1. Therefore, reduction of a manufacturing cost is attained. in addition, working pusher-plate 325b -- right and left -- whichever it rotates, in order that the edge may contact fixed pusher-plate 325a, the movable range becomes large beyond the need. Therefore, there is no danger that the bill 1 on working pusher-plate 325b will shift crosswise.

[0116] As shown in drawing 15 , the arm section (it is henceforth called "SUTAKKUA-MU") 332 is formed in the interior of stacker 300a. As shown also in drawing 16 , SUTAKKUA-MU 332 consists of two long and slender plates, and spacing inside two plates has made it larger than the width of face of the conveyance device section 309 more narrowly than the width of face of a bill 1. In addition, SUTAKKUA-MU 332 is connected with RIFUTOMO-TA 333 arranged at the lower part of stacker 300a, and can move up and down by the revolution of RIFUTOMO-TA 333.

[0117] SUTAKKUA-MU 332 has stopped the top face of the bill 1 in the most significant of the bill 1 loaded into the pusher-plate 325 in the downward predetermined location from a presser foot and the bill conveyance opening 301 in a payment standby condition. This is for making it the bill 1 received by stacker 300a not collide with the bill 1 already loaded on the pusher-plate 325.

[0118] Drawing 21 is the side elevation of stacker 300a just before taking out a bill 1 from stacker 300a. In the case of the payment of a bill 1, SUTAKKUA-MU 332 goes up toward the conveyance device section 309. The pusher-plate 325 is energized up by the elastic force of the pusher-spring 326, as stated with reference to drawing 19 .

[0119] Therefore, lifting of SUTAKKUA-MU 332 raises the pusher-plate 325, where the top face of the bill 1 in the most significant of the bill 1 currently loaded on it is contacted on the underside of SUTAKKUA-MU 332. And when SUTAKKUA-MU 332 moves onto the belt side of the conveyance belt 304,312, the pusher-plate 325 contacts the top bill 1 to the conveyance belt 304,312, and stops. In addition, about the device of vertical movement of SUTAKKUA-MU 332, it mentions later.

[0120] The stopper member (it is henceforth called an "end stopper") 334 which makes payment and an opposite direction drive the conveyance belt 304,312 after payment and which presses down the head of a bill 1 in the case of the so-called order actuation is formed in the bill conveyance opening 301 and the opposite hand of stacker 300a. The end stopper 334 is the configuration which has ramp 334c at which it turned at the right angle near the height of the bill conveyance opening 301 of the bill conveyance opening 301, vertical section 334a parallel to the vertical wall surface of an opposite hand, and its vertical section 334a, and

which pushed and started from section 334b and its forcing section 334b to the upper part at the include angle alpha (alpha is an acute angle). In addition, the include angle alpha of this ramp 334c has the desirable range of 25 to 45 degrees, and it makes it 35 degrees with the gestalt of this operation.

[0121] The lower part of an end stopper's 334 vertical section 334a is connected with stacker 300a through the spring 335. Drawing 22 is drawing having shown an end stopper 334 and its circumference part. It has the spring 335 so that an end stopper 334 may be energized caudad. In the payment standby condition shown in (A), the end stopper 334 is separated with the bill 1 in the most significant of the bill 1 laid on the pusher-plate 325.

[0122] On the other hand, at the time of the payment shown in (B), when SUTAKKUA-MU 332 moves more nearly up than the conveyance belt 304,312, the pusher-plate 325 goes up. Consequently, the top bill 1 of the bill 1 loaded on the pusher-plate 325 touches the conveyance belt 304,312, while lifting an end stopper 334 slightly. An end stopper 334 has the part to which only the slight distance D rose from the payment condition of (A), and the work which goes caudad and presses down the top bill 1 so that it may be illustrated.

[0123] For this reason, in the order actuation immediately after the payment of a bill 1, the danger of bending or turning to other bills 1 into which the bill 1 in the most significant of the bill 1 currently loaded into the pusher-plate 325 is caudad loaded in response to actuation of the conveyance belt 304,312 is low. Moreover, even if a bill 1 should move in the direction laid on an end stopper 334 when it has paid [1] in since it has ramp 334c, an end stopper 334 can make an end stopper's 334 head able to go caudad certainly, and it can perform normal payment actuation.

[0124] Drawing 23 is drawing which saw stacker 300a shown in drawing 15 from the bill conveyance opening 301 and an opposite direction. Moreover, drawing 24 is drawing which saw stacker 300a shown in drawing 21 from the bill conveyance opening 301 and an opposite direction. The SUTAKKUA-MU actuation room 336 which stores RIFUTOMO-TA 333 which drives SUTAKKUA-MU 332 is established in the background (right-hand side of drawing 23) of stacker 300a. RIFUTOMO-TA 333 is being fixed to the lower part of the SUTAKKUA-MU actuation room 336.

[0125] As shown in drawing 23 , SUTAKKUA-MU 332 serves as a configuration which projected to the SUTAKKUA-MU actuation room 336 from two plates, and has the long and slender opening roundish [wore right and left on the nosing] 337. Moreover, the revolving arm 338 is attached in motor shaft 333a of RIFUTOMO-TA 333. The pivotable disk 339 is attached at the head of motor shaft 333a of a revolving arm 338, and an opposite direction. Furthermore, the disk 339 is attached in right and left movable at the opening section 337 in above-mentioned SUTAKKUA-MU 332.

[0126] Therefore, if RIFUTOMO-TA 333 rotates, while a revolving arm 338 rotates and a disk 339 rotates, the opening section 337 will be moved to right and left. And

SUTAKKUA-MU 332 can be moved up and down now by the revolution of a revolving arm 338.

[0127] Moreover, the tubed magnet 340 is formed at the head of motor shaft 333a of a revolving arm 338, and an opposite direction. One hall sensor 341 is being fixed to the location where a disk 339 comes stacker 300a to the bottom mostly, and the location which comes to the topmost part, respectively. The hall sensors 341 of the former and the latter are stack lift top sensor 341a which stops SUTAKKUA-MU 332 in an up-and-down predetermined location, respectively, and bottom sensor of stack lift 341b.

[0128] If RIFUTOMO-TA 333 rotates and the tubed magnet 340 laps with bottom sensor of stack lift 341b as shown in drawing 23 , a signal will be sent to CPU501. And CPU501 stops RIFUTOMO-TA 333. Under the present circumstances, SUTAKKUA-MU 332 is in the condition of having moved to the downward predetermined location and having stopped lifting of the pusher-plate 325 from the bill conveyance opening 301. The conveyance belt 304,312 drives in the payment direction after this condition, and payment actuation is performed.

[0129] On the other hand, in the case of payment, as shown in drawing 24 , when RIFUTOMO-TA 333 half-rotates from the condition of drawing 23 , the tubed magnet 340 laps with stack lift top sensor 341a. By this, CPU501 stops RIFUTOMO-TA 333. Under the present circumstances, SUTAKKUA-MU 332 is in the condition of having stopped from the belt side of the conveyance belt 304,312 in the upper predetermined location. The conveyance belt 304,312 drives in the payment direction after this condition, and payment actuation is performed.

[0130] Thus, RIFUTOMO-TA 333 is two stack lift sensors. - It always stops for every half-revolution by 341a and 341b. For this reason, SUTAKKUA-MU 332 has come to be able to carry out both-way actuation in a vertical predetermined location.

[0131] The near end sensor -342 by which the bill 1 contained by stacker 300a detects that it is close to empty, and the NIAFURU sensor -343 by which a bill 1 detects a thing near to the limit are formed in the wall of the SUTAKKUA-MU actuation room 336 of stacker 300a. Outside stacker 300a, from from, although the fixed position of these sensors 342,343 is adjustable, it is usually being fixed to the location where the bill 1 contained can detect the location of the pusher-plate 325 in the condition near empty, and the condition near fullness.

[0132] The near end sensor -342 and the NIAFURU sensor -343 are cutoff sensors which have the clearance in the center, respectively. If the detection plate 344 fixed to the pusher-plate 325 goes into this clearance, the light which passed along the clearance till then will be intercepted. By cutoff of this light, a signal is sent to CPU501. After being detected by the near end sensor -342, the detection plate 344 has sufficient die length, although the near end sensor -342 can maintain the condition of ON, even if the pusher plate 325 goes up further. The same is said of the NIAFURU sensor -343.

[0133] Moreover, if the near end sensor -342 or the NIAFURU sensor -343 is turned on, the device which carries out the relative count of the number of sheets of the bill which ON-comes out of to stacker 300a, and which is set to it from the event of being turned on is established. After turning on the near end sensor -342 or the NIAFURU sensor -343, specifically, the count signal of the bill 1 which passed the stack inlet-port sensor 307 is sent to CPU501. And CPU501 performs the relative count which counts the change in a bill 1 relatively. And if the predetermined number of sheets which was made to memorize beforehand and was placed is reached, the bill 1 which sends out a signal or a full signal and is contained by stacker 300a will tell empty or a full thing.

[0134] Therefore, if the external host computer is connected with this bill receipt equipment, the receipt condition of a bill 1 can be grasped quantitatively and with time also in the location distant from the control unit 509 of high order machines, such as an automatic vending machine.

[0135] Moreover, the activity improper sensor 345 is formed under the NIAFURU sensor -343. The activity improper sensor 345 is being fixed to the location which is not turned on in the range of vertical movement of the pusher-plate 325 in the payment and payment actuation of a bill 1.

[0136] In the case of maintenance of this equipment, inspection or recovery of a bill, and a supplement, the pusher-plate 325 is lowered to the bottom of stacker 300a, and it enables it to fix to it by the plate hook 346. The activity improper sensor 345 is turned on in that case. It makes it recognize that the pusher plate 325 is being fixed to a manager, and even if it switches on a power source, with the pusher-plate 325 fixed, it is preventing from operating this equipment, when the activity improper sensor 345 is turned on.

[0137] Therefore, on the occasion of operation of this equipment, the plate hook 346 shown in drawing 18 from the pusher-plate 325 is removed, and after checking that it is in the condition that the pusher-plate 325 can move up and down, it can operate. By this, a manager can reduce finishing the activity of a supplement of a bill, recovery, etc., while he has been in the condition that equipment does not operate.

[0138] Drawing 25 is a side elevation inside stacker 300a in the payment midst. The conveyance device section 309 is equipped with the device for preventing a double feed when the bill 1 contained is detected by the stack inlet-port sensor 307. Below, this device is explained.

[0139] The upper part of the opposite hand of the bill conveyance opening 301 of stacker 300a is equipped with the rotatable stopper-arm 348 centering on the shaft 347. The stopper-arm 348 is connected with Bure-KISORENOIDO which is not illustrated through a shaft 347. Therefore, if Bure-KISORENOIDO serves as ON with the signal from a control section 500, the stopper-arm 348 will be rotated to a clock and an opposite direction in drawing 25 .

[0140] The shaft 347 of the stopper-arm 348 and the head of an opposite direction are connected with head 350a of the rotatable brake arm 350 centering on the shaft 349 arranged in the direction of the bill conveyance opening 301 rather than a shaft 347. The brake member 351 with big coefficient of friction (for example, rubber) is attached in head 350a of a brake arm 350. The slot on concavo-convex is attached to the brake member 351 in the payment and the direction of a right angle of a bill 1.

[0141] Therefore, if the head of the top bill 1 of the bill 1 contained is detected by the stack inlet-port sensor 307, the stopper-arm 348 will rotate and head 350a of a brake arm 350 will descend by it. And the brake member 351 with which this head 350a was equipped presses down the top face of the 2nd bill 1 which is directly under the top bill 1.

[0142] Moreover, the conveyance device section 309 is equipped with the rotatable roller arm 353 centering on the shaft 352 which it had in the direction of the bill conveyance opening 301 from the shaft 349. Head 353b of the roller arm 353 is located above head 350a of a brake arm 350, and head 350b of an opposite hand. Moreover, the ON appearance both directions of a bill 1 are equipped with the pivotable roller 354 at head 353b of the roller arm 353, and head 353a of an opposite direction.

[0143] If a brake arm 350 rotates clockwise in drawing 25 and the head 350b moves up, head 353b of the roller arm 353 will be raised. Simultaneously, the roller arm 353 rotates counter clockwise in drawing 25, and the roller 354 with which the head 353a was equipped depresses the bill 1 contributed. The conveyance belt 304,312 is separated from the bill 1 contributed by this. The 2nd [or less] bill 1 which has caudad the bill 1 contributed by this does not receive actuation in the payment direction with the conveyance belt 304,312.

Therefore, a double feed can only be reduced rather than the device which the brake member 351 presses down from the top face of the 2nd bill 1.

[0144] The bill 1 contributed is inserted into the stack inlet-port upper roller 302 and the stack inlet-port lower roller 303 which were wound around the conveyance belt 304 when detected by the stack inlet-port sensor 307. Therefore, in response to actuation of the conveyance belt 304, money is invested in this location across which it faced. In addition, since a roller 354 can be rotated freely, payment actuation is performed smoothly.

[0145] Moreover, head 353a of the roller arm 353 is connected with the upper part of the conveyance device section 309 with a spring 355, and is energized up. Therefore, if the stopper-arm 348 rotates clockwise, the roller arm 353 will be clockwise rotated centering on a shaft 352. A roller 354 is contained more nearly up than conveyance belt 304,312 grade by it.

[0146] By the way, the structure and the appearance of each stackers 300a, 300b, and 300c are fundamentally the same. However, although the width of face of three kinds of each bill 1 is the same, die length differs. A thousand-yen bill is the shortest and, specifically, long every 5mm with five thousand-yen bills and a ten thousand yen bill. Unless it makes into the almost same magnitude as the magnitude of a bill 1 the tooth space which contains a bill 1, where a

bill 1 is tidied up, it cannot be contained.

[0147] For example, if it is the storage space which doubled the interior of each stackers 300a, 300b, and 300c with the magnitude of a ten thousand yen bill, although a ten thousand yen bill is satisfactory, an edge will not gather but a thousand-yen bill and five thousand-yen bills will be contained in the condition with much play. Therefore, there is a danger that a trouble will arise in payment actuation. On the other hand, if it is the storage space which doubled the interior of each stackers 300a, 300b, and 300c with the magnitude of a thousand-yen bill or five thousand-yen bills, a ten thousand yen bill will bend, or it will be contained in the condition of having bent, and will become the cause of a trouble similarly.

[0148] For this reason, that magnitude of each stackers 300a, 300b, and 300c should be made the storage space which suited the magnitude of the various bills 1. The internal tooth space between each stackers 300a, 300b, and 300c is first doubled for ten thousand yen bills. To the bill conveyance opening 301 of the stackers 300a and 300b of the bill 1 of other type, and the wall of an opposite direction. It enables it to equip with the end stopper 334 as an adjustment plate set by the die length of a thousand-yen bill or five thousand-yen bills removable.

[0149] Stacker 300 for thousand-yen bills a is equipped with the end stopper 334 with a thickness of 10mm, and, specifically, stacker 300 for 5 thousand-yen bills b is equipped with the end stopper 334 with a thickness of 5mm.

[0150] Thus, magnitude of each stackers 300a, 300b, and 300c cannot be changed for every class of bill 1, but each stackers 300a and 300b and 300c content volume can be changed only by attachment and detachment of the end stopper 334 with which thickness differs. Therefore, share-ization of the components of each stackers 300a, 300b, and 300c can be performed, and the response to change of the bill 1 dealt with further becomes easy. Especially, recently, the activity demand of foreign bills, such as an American greenback, is increasing, and this equipment can respond also to such a demand quickly.

[0151] (5) It is [0152] about the ejection rejection section. Next, the structure of the ejection rejection section 400 is explained. Drawing 26 and drawing 27 are the sectional views seen from the perspective view and side face of the ejection rejection section 400, respectively. The ejection rejection section 400 consists of rejection section 400b which saves only the abnormality bill (it is henceforth called a "different ticket") 2 of the bill 1 grade which caused ejection section 400a which invests money collectively, a fake bill and a jam, or the double feed, after all the true tickets are conveyed, while saving until it contributed the true ticket collectively as shown in drawing 1.

[0153] Ejection section 400a is arranged at the lower part of the ejection rejection section 400. On the other hand, rejection section 400b is arranged in the upper part of the ejection rejection section 400. It is the front of ejection section 400a, and the bill payment opening 401 with which a bill 1 is contributed is formed in the equipment exterior. Moreover, the bill payment opening 401 and the bill conveyance opening 402 which receives the bill 1 from the bill

conveyance section 200 in an opposite direction are formed. The ejection inlet-port sensor 403 which can detect passage of the true ticket conveyed from the bill conveyance section 200 or the different ticket 2 to the bill conveyance opening 402 is arranged.

[0154] The ejection inlet-port sensor 403 is an optical type sensor of a transparency mold, and light emitting device 403b and every two photo detector 403a each are prepared in the location where the bill conveyance opening 402 counters up and down. In drawing 27, although only one upper and lower sides of the ejection inlet-port sensor 403 are visible at a time, the ejection inlet-port sensor 403 per upper and lower sides exists in the direction of a space flesh side of this drawing. Light emitting device 403b is prepared in the bill conveyance opening 402 bottom, and photo detector 403a is prepared in the bill conveyance opening 402 upside. The ejection inlet-port sensor 403 will send the signal which tells CPU501 about existence of a bill 1, if a bill 1 exists between light emitting device 403b and photo detector 403a.

[0155] Furthermore, the ejection inlet-port sensor 403 is covered with the sensor-coverings 404a and 404b of one upper and lower sides each which made the contact surface with a bill 1 common so that the self-cleaning of the dirt carried by the bill 1 can be carried out at the time of conveyance of other bills 1. Like the sensor-covering 308 of the stack inlet-port sensor 307, 2.0-3.0mm is suitable for spacing of the up-and-down sensor-coverings 404a and 404b, and its 2.3-2.7mm is preferably good. The still more nearly optimal width of face is 2.4-2.5mm.

[0156] the ejection lower roller 405 which the bill 1 conveyed from the bill conveyance section 200 rotates in the payment direction, and a revolution -- it is pinched by the ejection upper roller 406 which it had movable, and is conveyed inside the ejection rejection section 400. Drawing 28 is drawing having shown the ejection lower roller 405 prepared in the bill conveyance opening 402, and its edge strip. The both-sides side of the ejection lower roller 405 is equipped with the bigger circular support plate 407 than the diameter of the ejection lower roller 405.

[0157] Moreover, the impeller 408 which has eight wing 408a made of elasticity polyurethane rubber is formed in the both-sides side of a support plate 407. An impeller 408 has the role which presses down caudad the bill 1 already conveyed by ejection section 400a at the same time it leads the bill 1 conveyed from the bill conveyance opening 402 to the interior of the ejection rejection section 400. About the structure and the function of this impeller 408, it mentions later.

[0158] The ejection lower roller 405 is connected with the stepping motor 700 formed in the lower part of bill receipt equipment through the gear which is not illustrated. the ejection upper roller 406 -- a revolution -- although it is movable, it does not connect with driving sources, such as a motor. Therefore, a bill 1 is pinched by the ejection upper roller 406 followed and rotated on the ejection lower roller 405 and this roller 405 which are driven with a stepping motor 700, and is conveyed inside the ejection rejection section 400.

[0159] Drawing 29 is the ejection rejection section 400 seen from the direction of the bill conveyance opening 402 at the time of a bill 1 being conveyed. A bill 1 serves as an about U character configuration according to the plane of composition of the ejection upper roller 406 and the ejection lower roller 405 so that it may be illustrated. In addition, a bill 1 is pressed down on the underside of rotation type arm 485b mentioned later while supporting it to an impeller 408 from a center before an edge. Therefore, as a whole, a bill 1 is a wave configuration with the loose cross section, and is conveyed by the ejection rejection section 400. By this, ejection section 400a does not break with the bill 1 of medieval times with a wrinkling or a chip box peculiarity caudad, it will not be in the condition of having bent, but the trouble of colliding with the bill 1 already suspended for ejection section 400a can be prevented.

[0160] When the bill 1 conveyed from the bill conveyance opening 402 is the different ticket 2, the different ticket 2 is laid on RIFUTOBE-SU 450 which has descended from rejection section 400b. RIFUTOBE-SU 450 which laid the different ticket 2 goes up to rejection section 400b again, and will be in a standby condition. On the other hand, when the bill 1 conveyed from the bill conveyance opening 402 is a true ticket, the true ticket is laid in the hold plate 410 temporarily which was prepared on the bill payment actuator 420 fixed to the lower part of ejection section 400a. Under the present circumstances, RIFUTOBE-SU 450 is still the condition of having stood by to rejection section 400b.

[0161] As shown in drawing 27, the IJIEKUTORO-Ra arm 452 equipped with the roller 451 is formed at the head at RIFUTOBE-SU 450. The IJIEKUTORO-Ra arm 452 is in the condition that RIFUTOBE-SU 450 was caudad taken down as shown in drawing 27, when RIFUTOBE-SU 450 is standing by to rejection section 400b. However, when RIFUTOBE-SU 450 moves to ejection section 400a, the bill 1 with which the roller 451 was laid on the hold plate 410 temporarily is contacted. In drawing 27, it rotates counter clockwise centering on a shaft 453, and the IJIEKUTORO-Ra arm 452 is contained inside RIFUTOBE-SU 450 by this. At the time of conveyance of a true ticket, the IJIEKUTORO-Ra arm 452 has the role which narrows the tooth space of bill payment opening 401 direction so that the bill 1 conveyed from the bill conveyance opening 402 may not be round. Moreover, at the time of payment, RIFUTOBE-SU 450 serves as hindrance which applies a self-weight to a bill 1.

[0162] Moreover, guy door-MU 455 of this arm 452 extended at a level with the direction of the bill conveyance opening 402 while connecting with the core with one shaft 454 mostly is connected with the IJIEKUTORO-Ra arm 452. While RIFUTOBE-SU 450 is standing by to rejection section 400b, guy door-MU 455 is the almost same height as the bill conveyance opening 402, and is in the level condition. However, when RIFUTOBE-SU 450 descends to ejection section 400a, by receipt actuation of the IJIEKUTORO-Ra arm 452, guy door-MU 455 rotates centering on a shaft 454, and maintains a level condition.

[0163] In case a true ticket is conveyed by ejection section 400a, guy door-MU 455 is formed

in order to be able to wind up with an impeller 407 and to make it not raise a jam in the upper part of ejection section 400a. Furthermore, the object it is made not to collide with the following bill 1 also has a true ticket by being round near the inlet port of ejection section 400a. Thus, the conveyed true ticket is normally laid on the hold plate 410 along the dip of the IJIEKUTORO-Ra arm 452 temporarily, being pressed down so that it may not go up by guy door-MU 455.

[0164] When drawing 30 and drawing 31 are conveying the bill 1 to ejection section 400a, respectively, they are drawing showing the momentary hold plate 410 in front of payment, and the condition of the bill payment actuator 420. As shown in drawing 30, the hold plate 410 is formed in the upper part of the bill payment actuator 420 fixed to the lower part of ejection section 400a temporarily. When the bill 1 is conveyed by ejection section 400a, the hold plate 410 is in the condition of having lifted two anterior part rotation arms 422 and a shaft 423 rotatable as a core by two back rotation arms 424 rotatable as a core in the shaft 421 temporarily. Since the anterior part rotation arm 422 is started by the acute angle rather than the back rotation arm 424, the hold plate 410 is in the condition that the direction of the bill payment opening 401 inclined highly slightly temporarily.

[0165] Thus, when the hold plate 410 inclines temporarily, it becomes possible to arrange with the bill conveyance opening 402 side of ejection section 400a the back end of the bill 1 laid on the hold plate 410 temporarily. An impeller 408 rotates in the bill conveyance opening 402 side, and a bill 1 is pushed against the hold plate 410 by wing 408a temporarily.

Therefore, the bill 1 laid in the hold plate 410 temporarily is set in the condition of having been compressed on the hold plate 410 temporarily, in case the following bill 1 is conveyed by ejection section 400a. Therefore, there is no danger that the bill 1 laid in the hold plate 410 temporarily and the bill 1 newly conveyed by ejection section 400a will collide. Furthermore, since the hold plate 410 inclines the direction of the bill payment opening 401 upwards temporarily, the space of the direction of the bill payment opening 401 is narrower than the space of bill conveyance opening 402 direction. For this reason, the bill 1 conveyed by ejection section 400a can prevent troubles, like it is round by the bill payment opening 401 side, and the normal ejection actuation of it is attained.

[0166] As shown in drawing 30 and drawing 31, two small slots 411a and 411b and one Daicho hole 412 which were doubled with each location are established in the hold plate 410 temporarily so that the projection of Rollers 425a and 425b and the conveyance belt 426 which constitute the bill payment actuator 420 in the upper part may be slightly attained from the hold plate 410 temporarily. As mentioned above, the hold plate 410 is lifted temporarily at the ejection section 400a side by two anterior part rotation arms 422 and two back rotation arms 424. Therefore, it is in the condition that Rollers 425a and 425b and the conveyance belt 426 do not project from on the hold plate 410 temporarily except the time of payment.

[0167] Drawing 31 is drawing showing the condition that the hold section 410 descended just

before payment in the bill payment actuator 420 temporarily. When the ejection shutter-solenoid 440 mentioned later serves as ON, two anterior part rotation arms 422 and two back rotation arms 424 rotate centering on a shaft 421,423, respectively, and fall in the direction of the bill conveyance opening 402. By this, the hold plate 410 descends to the bill payment actuator 420 temporarily.

[0168] As shown in drawing 27 , the anterior part rotation arm 422 and the back rotation arm 424 are not fixed to the hold plate 410 temporarily, but the part which touches the hold plate 410 temporarily is equipped with Rollers 422a and 424a, respectively. If the anterior part rotation arm 422 and the back rotation arm 424 fall, the hold plate 410 does not move in the direction of the bill conveyance opening 402, but can descend perpendicularly smoothly temporarily. Therefore, compared with the case where it descends while the hold plate 410 moves in the direction of the bill conveyance opening 402 temporarily, the tooth space of ejection section 400a is small, and ends. For this reason, the miniaturization of equipment can be attained.

[0169] As shown in drawing 31 , when the hold plate 410 descended and laps with the bill payment actuator 420 temporarily, the bill detection plate 427 mentioned later comes out from the Daicho hole 412 on the hold plate 410 besides Rollers 425a and 425b and the conveyance belt 426 temporarily. On the other hand, since the bill 1 on the hold plate 410 is pushed by RIFUTOBE-SU 450 temporarily in the case of payment, lifting of the bill detection plate 427 is controlled. Therefore, the bill detection plate 427 has the function which detects whether a bill 1 exists up. About this function, it mentions later.

[0170] Drawing 32 is the perspective view having shown the structure of the bill payment actuator 420. The gear 430 is connected with the stepping motor 700 arranged at the bill receipt equipment lower part through the gear which is not illustrated. A gear 430 is connected with a roller 432 through a shaft 431, and is. The roller 432 and the roller 433 are wound around the belt 434. And a roller 433, a roller 435, roller 425a, and roller 425b are connected with the shaft 436.

[0171] Moreover, the conveyance belt 426 is stretched by the roller 435 and the roller 437. furthermore, the conveyance belt 426 -- in the center, the roller 438 is mostly arranged as an agency roller. Therefore, when a stepping motor 700 rotates, Rollers 425a and 425b and the conveyance belt 426 (it is henceforth described as "conveyance belt 426 grade" suitably) are pivotable.

[0172] On the other hand, the gear 430 is connected through the ejection lower roller 405 and the belt which is not illustrated. Therefore, if a stepping motor 700 rotates in the payment direction, while Rollers 425a and 425b and the conveyance belt 426 will rotate in the payment direction, the ejection lower roller 405 is also rotated in the payment direction. For this reason, conveyance of the bill 1 to the ejection rejection section 400 and conveyance to the bill payment opening 401 of a bill 1 are able to carry out by one motor. Therefore, reduction of

failure by considering as simple structure with control of the cost of equipment can be aimed at.

[0173] In addition, as mentioned above, the hold plate 410 does not descend to the bill payment actuator 420 side temporarily until all the bills 1 that invest money are laid on the hold plate 410 temporarily. Therefore, even if the conveyance belt 426 grade is rotating in the payment direction, a bill 1 and conveyance belt 426 grade cannot contact the midst which is laying the bill 1 in the hold plate 410 temporarily. For this reason, the bill 1 laid in the hold plate 410 temporarily receives actuation of the payment direction just before payment.

[0174] Drawing 33 is drawing having extracted and shown the rotation type arm 485 and RIFUTOBE-SU 450 which separate ejection section 400a and rejection section 400b. The rotation type arm 485 consists of two rotation type arm 485b arranged at the two openings [which have been arranged at the bill payment opening 401 side], rotation type arm 485a and bill conveyance opening 402, side. The rotation type arms 485a and 485b are rotatable between the location which makes a rotation minimum the level condition (location of B in drawing) which shows in drawing 33 , and the rotation upper limit location (location of C in drawing) of the condition to the about 90-degree upper part. The rotation type arms 485a and 485b are width of face narrower than the width of face of a bill 1, and are arranged in the location which touches 4 angles of RIFUTOBE-SU 450 with one-piece each ***** eclipse ***** 456.

[0175] And the presser-foot plate 488 for pressing down the different ticket 2 from the upper part is laid on the rotation type arm 485. About the structure of the presser-foot plate 488, it mentions later. Four rotation plates 456 are connected each with one shaft 457 (it remains in drawing 33 and two are not visible) which equipped the outside of RIFUTOBE-SU 450 with each one side. And as shown in drawing 33 , each rotation plate 456 is made rotatable only in the direction of A from the level condition, and can be rotated no longer in A and hard flow from a level condition with the stopper which is not illustrated.

[0176] If the different ticket 2 is conveyed from the bill conveyance opening 402, according to the instruction from CPU501, RIFUTOBE-SU 450 will descend to ejection section 400a from rejection section 400b. Under the present circumstances, the rotation plate 456 of RIFUTOBE-SU 450 in contact with the rotation type arm 485 holding a level condition rotates in the direction of A shown in drawing 33 . By this, RIFUTOBE-SU 450 avoids the rotation type arm 485, and can descend now to ejection section 400a.

[0177] If the different ticket 2 is laid, updrift of RIFUTOBE-SU 450 which descended to ejection section 400a will be again carried out to rejection section 400b. Drawing 34 is drawing which saw the motion of rotation type arm 485a at the time of RIFUTOBE-SU 450 carrying out updrift to rejection section 400b and the rotation plate 456 from the bill payment opening 401 and its left-hand side. (A) of drawing 34 shows the condition that RIFUTOBE-SU 450 is in ejection section 400a. In this condition, since rotation type arm

485a and the rotation plate 456 do not touch, both are still maintaining the level condition.

[0178] If RIFUTOBE-SU 450 goes up, and the rotation plate 456 contacts rotation type arm 485a as shown in (B), since the rotation plate 456 cannot be rotated inside RIFUTOBE-SU 450, a horizontal will be maintained. On the other hand, since it is up rotatable, rotation type arm 485a is pushed up up with the rotation plate 456. Thus, RIFUTOBE-SU 450 moves to rejection section 400b, rotating rotation type arm 485a up.

[0179] The shaft 486 of the rotation type arms 485a and 485b is connected with the stopper which is not illustrated, and rotates caudad the rotation type arms 485a and 485b. Furthermore, the stopper is connected with the spring and holds rotation type arm 485b horizontally.

Therefore, as shown in (C), after RIFUTOBE-SU 450 moves to rejection section 400b, the rotation type arms 485a and 485b rotated up return to the original level condition according to the stability of a spring.

[0180] Drawing 35 is the bottom view which saw RIFUTOBE-SU 450 from the lower part of bill receipt equipment. RIFUTOBE-SU 450 equips the bill conveyance opening 402 side with two rollers 460a and 460b arranged by approaching an one roller 459 and bill payment opening 401 side in the center mostly with two rollers 458a and 458b. Each rollers 458a, 458b, and 459 are arranged in the location which counters, respectively with each rollers 425a, 425b, and 438 of the bill payment actuator 420.

[0181] Moreover, roller 460a arranged by approaching and roller 460b are arranged in the location which counters the roller 437 of the bill payment actuator 420. Therefore, if RIFUTOBE-SU 450 descends at ejection section 400a in the case of payment, the bill 1 which should invest money will be inserted with each rollers 425a, 425b, 435,437,458a, 458b, 459,460a, and 460b of these upper and lower sides.

[0182] Drawing 36 is a side elevation in the condition of having inserted the bill 1 with each rollers 425a, 425b, 435,437,458a, 458b, 459,460a, and 460b of RIFUTOBE-SU 450 in front of payment, and the bill payment actuator 420. Each rollers 458a and 459,460a are connected with each shafts 461a and 462,463, respectively. In addition, although it is the flesh side of a bill 1 and is not visible in drawing 36 , as shown in drawing 35 , each rollers 458b and 460b are connected with each shafts 461b and 463, respectively.

[0183] Furthermore, as shown in drawing 35 , the ends of each shafts 461a, 461b, and 462,463 are connected with the interior of RIFUTOBE-SU 450 through a total of every the one-piece each two springs 464a, 464b, and 465,466. Therefore, even when the front face of the bill 1 which invests money is not even in the payment direction, it can send out to the bill payment opening 401 by the uniform pressure.

[0184] Drawing 37 is drawing which saw RIFUTOBE-SU 450 in front of payment from the direction of the bill payment opening 401. Two rollers 460a and 460b formed in the bill payment opening 401 side of two rollers 458a and 458b and RIFUTOBE-SU 450 which were prepared in the ends of RIFUTOBE-SU 450 by approaching are illustrated. In addition, since

a roller 459 is located behind two rollers 460a and 460b, it is omitted from drawing 37 in order not to complicate drawing. Even if a bill 1 is in an uneven condition at right and left, in view of the bill payment opening 401, it is pinched by the uniform pressure, so that it may be illustrated. Therefore, it is possible to convey a bill 1 straightly toward the bill payment opening 401.

[0185] Drawing 38 is the enlarged drawing which saw roller 458b from the direction of the bill payment opening 401. The ends of shaft 461b of roller 458b are connected by each separate spring 464b so that it may be illustrated. Therefore, roller 458b can incline to the illustrated center line. Therefore, a uniform pressure is put even if local irregularity is in a bill 1. In addition, although drawing 38 shows only roller 458b, it has structure with the same said of each rollers 458a and 459.

[0186] Drawing 39 is the side elevation of the ejection rejection section 400 at the time of the different ticket 2 being conveyed from the bill conveyance section 200. RIFUTOBE-SU 450 is in the condition of having moved to ejection section 400a so that it may be illustrated. The already conveyed different ticket 2 puts the presser-foot plate 488 on the upper part, and is laid on the rotation type arm 485. As mentioned above, RIFUTOBE-SU 450 is movable caudad from the rotation type arm 485, when the rotation plate 456 with which the 4 angle was equipped rotates.

[0187] However, the different ticket 2 and the presser-foot plate 488 with width of face wider than the rotation type arm 485 are left behind to ejection section 400b, without the ability moving caudad from the rotation type arm 485. In addition, when only the different ticket 2 is laid on the rotation type arm 485, the different ticket 2 only has the danger of falling from the rotation type arm 485 to ejection section 400a, with the chip box peculiarity of the different ticket 2, or its weight. Then, the presser-foot plate 488 is arranged at rejection section 400b. Moreover, the presser-foot plate 488 also has the function to enable it to save as many different tickets 2 as possible to a narrow tooth space, by compressing from the upper part of the different ticket 2.

[0188] Drawing 40 is a perspective view in the condition of having removed the presser-foot plate 488 from the wall surface of the ejection rejection section 400. Moreover, drawing 41 and drawing 42 are drawings seen from the direction of drawing which saw the presser-foot plate 488 from the equipment upper part, respectively, and the bill payment opening 401 (the direction of the arrow head A of drawing 40). As shown in drawing 42 from drawing 40 , each hooks 489a and 489b are formed in the presser-foot plate 488. And each hooks 489a and 489b are inserted in the slots 490a and 490b in which it was prepared by the wall surface of the ejection rejection section 400, respectively.

[0189] The soffit of each slots 490a and 490b serves as a L character mold, and is made possible [inserting each hooks 489a and 489b only in this location]. Moreover, there is a soffit of each slots 490a and 490b caudad from the rotation type arm 485. Therefore, the

presser-foot plate 488 which can move up and down only in the upper part escapes from and comes out from each slots 490a and 490b working [equipment] from the rotation type arm 485.

[0190] In addition, hook 489a is the configuration which comes on the same flat surface as the presser-foot plate 488. On the other hand, hook 489b is the configuration which does not come on the same flat surface as the presser-foot plate 488. Having prepared the difference in this configuration is based on the following reason. As shown in drawing 45, the rejection full sensor -491 which gave the function to tell **** of the different ticket 2 is attached in the upper right of the ejection rejection section 400 illustrated. The rejection full sensor -491 is arranged on the background to the space of drawing 45 of a location which saves the different ticket 2. If the different ticket 2 saved increases, hook 489b will resist the elastic force of a spring 492, and will push up an adjusting screw 493. If an adjusting screw 493 goes up, the small arm 494 will go up in connection with this. And if the different ticket 2 saved reaches the specified quantity and the small arm 494 becomes predetermined dip, the rejection full sensor -491 will serve as ON.

[0191] Drawing 43 is drawing which saw the condition by which it is shown in drawing 27 from the direction of the bill payment opening 401. Ejection RIFUTOMO-TA 471 which drives RIFUTOBE-SU 450 and which is a motor is arranged in the RIFUTOBE-SU actuator 470 established in the flesh side (right-hand side of drawing 43) of the ejection rejection section 400. RIFUTOBE-SU 450 has actuation arm 450a projected to the RIFUTOBE-SU actuator 470. The disk 472 is connected with motor shaft 471a of ejection RIFUTOMO-TA 471. Furthermore, the disk 472 is connected with the cam 474 through the revolving arm 473.

[0192] The revolving arm 473 is equipped with the magnet 475 which is not illustrated. Moreover, when a cam 474 comes to the vertical upper part and the vertical lower part mostly, one hall sensor 476 each is being fixed to the magnet 475 and the location which counters, respectively. One is ejection RIFUTOMO-TA top sensor 476a prepared in order to make rejection section 400b stop RIFUTOBE-SU 450. Another is bottom sensor of ejection RIFUTOMO-TA 476b prepared in order to make ejection section 400a stop RIFUTOBE-SU 450.

[0193] When both the hall sensors 476 lap with a magnet 475, a signal is sent to CPU501. Ejection RIFUTOMO-TA 471 stops by this. Therefore, ejection RIFUTOMO-TA 471 stops in a half-revolution unit. According to drawing 43, when a magnet 475 laps with ejection RIFUTOMO-TA top sensor 476a, RIFUTOBE-SU 450 will be in the condition of having stopped to rejection section 400b.

[0194] In case drawing 44 lays the different ticket 2 on RIFUTOBE-SU 450 after all the bills 1 that finance the hold plate 410 temporarily are laid or, it is drawing having shown the condition that RIFUTOBE-SU 450 got down on the hold plate 410 temporarily. The revolving arm 473 is half-rotated from the condition of drawing 43. In this condition, the cam 474 has

shifted from actuation arm 450a. Therefore, it is in the condition that the self-weight of RIFUTOBE-SU 450 was applied to the bill 1 laid on the hold plate 410 temporarily.

[0195] Drawing 45 is drawing which saw the condition of drawing 44 from the left-hand side of the bill payment opening 401. Even if RIFUTOBE-SU 450 descends on the hold plate 410 temporarily, in this phase, the hold plate 410 has not descended to the downward bill payment actuator 420 side yet temporarily. In addition, Rollers 425a and 425b and the conveyance belt 426 of the bill payment actuator 420 stop, when the bill 1 which should invest money is altogether conveyed by ejection section 400a. Moreover, as shown in drawing 45, the anterior part rotation arm 422 is connected with the ejection shutter-solenoid 440 through each arms 441a, 441b, 441c, and 441d.

[0196] Drawing 46 is drawing having shown the condition that RIFUTOBE-SU 450 descended to the hold plate 410 side temporarily. If RIFUTOBE-SU 450 descends on the hold plate 410 temporarily, lift sensor - with which the revolving arm 473 connected with ejection RIFUTOMO-TA 471 was equipped and which is not illustrated will become ON. By this, the ejection shutter-solenoid 440 serves as ON.

[0197] If the ejection shutter-solenoid 440 serves as ON, the anterior part rotation arm 422 will be lengthened by each arms 441a, 441b, 441c, and 441d, and will fall. If the anterior part rotation arm 422 falls, the back rotation arm 424 will also fall on the bill payment opening 401 and an opposite direction. By this, the hold plate 410 moves caudad and laps with the bill payment actuator 420 temporarily. In addition, the ejection shutter-solenoid 440 becomes off immediately after becoming ON.

[0198] The crookedness arm 442 of the bent configuration is connected with the shaft 421 of the anterior part rotation arm 422, and rotation of the anterior part rotation arm 422 is interlocked with, and it rotates. And one hall sensor 443 each is being fixed to two locations which the crookedness arm 442 rotates and a magnet 445 stops. The hall sensor 443 currently fixed to the upper predetermined location among both the hall sensors 443 is ejection shutter - top sensor 443a which tells what the shutter 413 mentioned later opened. Moreover, the hall sensor 443 currently fixed to the downward predetermined location is bottom sensor of ejection shutter - 443b which tells what the shutter 413 closed.

[0199] As shown in drawing 45 and drawing 46, it is the bill payment opening 401 side of the hold plate 410 temporarily, and the shutter 413 which has the function which closes the bill payment opening 401 before payment is formed in the location which counters the bill payment opening 401. Moreover, this shutter 413 is attached so that it may operate in one with the hold plate 410 temporarily. Therefore, the bill payment opening 401 can be opened and closed by vertical actuation of the hold plate 410 temporarily. It is not necessary to establish a special shutter device by enabling closing motion of the bill payment opening 401 by this simple device. Therefore, cost reduction of equipment and reduction of failure can be aimed at.

[0200] If the crookedness arm 442 rotates and ejection shutter - top sensor 443a becomes ON, the signal which tells what the shutter 413 opened from this sensor 443a to CPU501 will be sent. Moreover, the self-weight of RIFUTOBE-SU 450 is applied from the upper part of the bill 1 laid on the hold plate 410 temporarily. For this reason, the magnet 428 fixed to the soffit of the bill detection plate 427 with which the bill payment actuator 420 was equipped laps with the bill existence sensor 429 which is a hall sensor. After checking that both the sensors of ejection shutter - top sensor 443a and the bill existence sensor 429 are ON, CPU501 drives a stepping motor 700 in the payment direction.

[0201] Drawing 47 is drawing which saw the condition of drawing 46 from the direction of the bill payment opening 401. It turns out that RIFUTOBE-SU 450 is descending to the location still lower than the location shown by drawing 44 by descent of the hold plate 410 temporarily. In this condition, the cam 474 is separated from actuation arm 450a like the condition of drawing 44. Therefore, it is in the condition that the self-weight of RIFUTOBE-SU 450 was applied to the installation ***** bill 1 on the hold plate 410 temporarily. Therefore, it is not necessary to establish a special application-of-pressure device compared with the case where it is financed from a lower part, putting a pressure on a bill 1. Therefore, cost reduction of equipment and reduction of failure can be aimed at.

[0202] Drawing 48 is drawing having shown change of actuation of the bill detection plate 427 under payment of a bill 1. In the phase in front of the payment shown in (A), the bill detection plate 427 is caudad pushed by the bill 1 compressed into the hold plate 410 by the self-weight of RIFUTOBE-SU 450 temporarily. Therefore, the magnet 428 fixed to the soffit of the bill detection plate 427 is in the condition (ON state) of having lapped with the bill existence sensor 429 which detects the existence of the bill 1 which invests money.

[0203] However, if the back end of a bill 1 is conveyed from the bill detection plate 427 at the bill payment opening 401 side as shown in (B), the bill detection plate 427 will start and a magnet 428 will separate it from the bill existence sensor 429 (OFF state). And conveyance of a bill 1 stops and it is held at the condition that some bills 1 jumped out of the bill payment opening 401. Therefore, in order that a bill 1 may not come out to the equipment exterior thoroughly, users, such as an automatic vending machine, are reception and a cone about a bill 1.

[0204] Moreover, as shown in drawing 47 from drawing 44, the ejection exhaust port sensor 444 is formed just before the bill payment opening 401. This sensor 444 is a sensor which detects whether the bill 1 was sampled. The ejection exhaust port sensor 444 is an optical type sensor of a transparency mold, and consists of the component of the couple of a light emitting device and a photo detector. If a bill 1 enters between a light emitting device and a photo detector, light is intercepted and existence of a bill 1 can be detected by it.

[0205] If a bill 1 is sampled from the bill payment opening 401, the ejection exhaust port sensor 444 will become off. And the signal which tells that a bill 1 does not exist is sent to

CPU501. By this, ejection RIFUTOMO-TA 471 rotates and RIFUTOBE-SU 450 goes up to rejection section 400b. Since RIFUTOBE-SU 450 is connected with the hold plate 410 with the spring which is not illustrated temporarily, the hold plate 410 is also lifted up with lifting of RIFUTOBE-SU 450 temporarily. Thus, the ejection rejection section 400 returns to the condition of drawing 27 which is before conveyance of a bill 1.

[0206] (6) bill storing section door [***** -- 0207] The bill storing section door 600 is formed in the side face of the bill stowage 300 of bill receipt equipment, and the ejection rejection section 400. The bill storing section door 600 can be opened now at the time of recovery of the time of repair of bill receipt equipment and inspection, and a bill, and a supplement.

[0208] Drawing 49 and drawing 50 are the enlarged drawings which saw the key section 601 from the side which the interior of stacker 300a, the seen perspective view, and a door (it is henceforth called a "bill storing section door") 600 open, respectively. The key section 601 consists of door sensor-601a which detects closing motion of the bill storing section door 600, and locking section 601b which performs locking of the bill storing section door 600.

[0209] Locking section 601b consists of a plate 602 fixed to the bill storing section door 600, and hook 603 with which the body side of equipment was equipped. The plate 602 serves as a configuration bent in three dimensions in the shape of a crank. Henceforth, this plate is called "crank mold metallic ornaments." To the crank mold metallic ornaments 602, the magnet 606 detectable to door sensor-601a has fixed so that it may be illustrated.

[0210] Moreover, the hook 603 with which the body of equipment was equipped serves as the shape of a typeface of KO. Henceforth, this hook is called "thin hook metallic ornaments." In addition, in drawing 49 (A) and (B), in order to make easy to understand structure of locking section 601b, and actuation, door sensor-601a which it is shown and is later mentioned as the thin hook metallic ornaments 603 floated in the air is omitted.

[0211] As shown in drawing 50, the thin hook metallic ornaments 603 have slot 603a. And the thin hook metallic ornaments 603 will be in the condition of starting plate 602a which is some crank mold metallic ornaments 602, at the time of locking. In case the bill storing section door 600 is opened, a key 604 is inserted in the field of the thin hook metallic ornaments 603, and it is made to rotate clockwise in drawing 49 (B).

[0212] Then, the thin hook metallic ornaments 603 rotate in the direction of an arrow head X focusing on key opening 603e, as shown in drawing 50 (B). By this, pawl section 603b of the thin hook metallic ornaments 603 shifts from plate 602a. Lower 603c of the thin hook metallic ornaments 603 extrudes the crank mold metallic ornaments 602 in the direction of arrow-head Y to it and coincidence. Therefore, the bill storing section door 601 is automatically opened outside by turning a key 604.

[0213] Moreover, the thin hook metallic ornaments 603 are connected with stacker 300a through the spring 605. The spring 605 is connected to 603d of fixed points of the thin hook

metallic ornaments 603, and 300d of fixed points of stacker 300a. When the bill storing section door 600 is opened and a key 604 is detached with this spring 605, the thin hook metallic ornaments 603 are energized so that it may return to the condition at the time of locking again.

[0214] Therefore, unless it inserts a key 604 and makes the lock condition of the thin hook metallic ornaments 603 cancel again, the bill storing section door 600 cannot be shut no longer. This is for avoiding the danger of locking putting a key 604 on the interior of equipment.

[0215] Moreover, as shown in drawing 50, in above [of the thin hook metallic ornaments 603], it is a door sensor. - It has the hall sensor (it is henceforth called "bill storing section door sensor -") as 601a. At the time of locking, as shown in drawing 50 (A), the magnet 606 which has fixed to the crank mold metallic ornaments 602 laps with bill storing section door sensor-601a. By this, CPU501 makes actuation of equipment the possible condition.

[0216] On the other hand, as shown in drawing 50 (B) and drawing 51, at the time of release, bill storing section door sensor-601a and a magnet 606 separate. In addition, 602L in drawing 51 is the location of the crank mold metallic ornaments 602 at the time of locking. Thereby, bill storing section door sensor-601a becomes off. After CPU501 rotates RIFUTOMO-TA 333 and moves SUTAKKUA-MU 332 up, it stops actuation of the whole equipment.

[0217] It is because recovery of a bill 1, supplement, or inspection can be performed easily to move SUTAKKUA-MU 332 up. Moreover, actuation of the whole equipment is suspended after that, because the danger of being injured is during the activity of recovery of a bill 1 etc. when equipment operates.

[0218] (7) It is [0219] about a control section. Drawing 52 and drawing 53 are the block diagrams having shown the relation of each configuration section of bill receipt equipment. When a control section 500 performs an exchange of the discernment section 100, the bill conveyance section 200, the bill stowage 300, the ejection rejection section 400 and the external communications department 508, and a signal, exact actuation of bill receipt equipment is possible.

[0220] Discernment section MPU501a receives the various signals of the die length of the bill 1 paid in, a light transmission pattern, and a magnetic pattern from an optical type and a magnetic formula sensor. And if the discernment section MPU is in agreement with one of true ticket information as compared with the preservation data of the various bills of the thousand-yen bill currently recorded, five thousand-yen bills, and a ten thousand yen bill, it will perform predetermined actuation. On the other hand, when data are not in agreement, it is judged as a fake bill and a bill 1 is returned.

[0221] CPU501 of a control section 500 is a part which receives the signal of existence of a bill 1, the die length of a bill 1, the light transmission pattern of a bill 1, etc. from the optical type in the bill conveyance section 200, the bill stowage 300, and ejection rejection section

400 grade, and a magnetic formula sensor. And as compared with the data currently recorded on ROM502, if in agreement, predetermined actuation will be performed. On the other hand, when not in agreement, it is judged as a fake bill and predetermined processing of rejection processing etc. is performed.

[0222] RAM (1) 503 is made to memorize receiving the signal from the following sensor at a predetermined step beforehand. Therefore, when a bill 1 is not able to go between other sensors in the predetermined step range from a certain sensor, it is judged that the jam was raised as a bill 1 is the path. Moreover, the data which set to 24 the number of steps which drives the top bill 1 of stacker 300a to payment and an opposite direction immediately after payment and payment actuation are also memorized by RAM(1) 503.

[0223] RAM (2) 504 is a part which makes the count with data sent from each sensor, such as the die length of a bill 1, and a magnetic pattern, or an error etc. memorize as a back updater.

[0224] A power supply section 507 is the power source of bill receipt equipment, and is using 24V DC power supply. A stepping motor 700 can be used by using DC power supply.

Moreover, by being referred to as direct-current 24V, even if short-circuited, it is safer than alternating current 100V power source. Moreover, since an external power source is used, lightweight-ization of equipment can be attained. Furthermore, since the electrical potential difference is stable, there is a merit by which actuation of equipment is stabilized.

[0225] (8) It is [0226] about a stepping motor. The driving source of the bill receipt equipment of this invention is two pieces, the discernment section conveyance motor 108 formed in the bill conveyance section 100, and the stepping motor 700 with which the equipment lower part was prepared. Therefore, actuation which conveys a bill 1 is performed even to the bill payment opening 401 using one stepping motor 700 from conveyance of the bill 1 after being sent to the bill conveyance section 200 from the bill discernment section 100, and the interior of stacker 300a.

[0227] The rotational frequency of a stepping motor 700 serves as adjustable to 300-1500pps. In addition, the range of a rotational frequency is not limited to this range. In consideration of quick close payment actuation of a bill 1, and generating of errors, such as a jam, it is considering as this range. Again. The initial actuation when turning ON the power source of equipment is the actuation which a stepping motor 700 rotates to right reverse, and each conveyance belt arranged the bill conveyance section 200 and inside the bill stowage 300 grade rotates. It is for checking that there are no abnormalities in actuation of equipment.

[0228] Moreover, when external temperature falls below to predetermined temperature by equipping the predetermined part inside equipment with temperature detector elements, such as a thermometer, it is also possible to pass a current to a stepping motor 700. While the stepping motor 700 is operating, this motor serves as an elevated temperature. Therefore, even if the temperature of the external world falls in winter, there are few dangers that trouble will arise in actuation of equipment.

[0229] However, since the temperature inside equipment also becomes close to the atmospheric temperature of the external world when actuation of equipment has stopped, a term **** case is in actuation of equipment about trouble. For example, when actuation becomes slow compared with the time of Hiraatsu (before or after 20 degrees), it is like not freezing and operating etc. Since equipment is surrounded in the outer wall, it can reduce such a trouble by preparing the member generating heat.

[0230] As a member to which the above generates heat, equipping the interior of equipment with heaters, such as for example, a warm air machine, is also considered. However, if an excessive member increases in equipment, it will become the miniaturization of equipment, and the failure of a cost cut.

[0231] Then, it is at the time when the temperature in equipment is low, and while the stepping motor 700 is not rotating, a current is passed on this motor 700, and the approach of heating the interior of equipment is taken. By taking such an approach, term **** danger can be reduced for trouble in equipment actuation also by the system which the long duration motor has suspended.

[0232] (9) It is [0233] about payment actuation. The flow chart of payment actuation is shown in drawing 54 . Hereafter, payment actuation of bill receipt equipment is explained according to a flow chart.

[0234] First, the power supply section 507 of bill receipt equipment is turned ON, and it considers as a payment standby condition (step S1). In this condition, first, a bill 1 is put into the slot for bills 101 of the bill discernment section 100, and payment actuation is started (step S2). Then, the inlet-port sensor 102 with which detection section 100a of the bill discernment section 100 was equipped detects whether the bill 1 was inserted (step S3). In addition, since the width of face of the inserted bill 1 is narrower than the width of face of the bill 1 of normal, when not detected by the inlet-port sensor 102, it is still the original standby condition.

[0235] If the inlet-port sensor 102 detects a bill 1, while the electromagnetic clutch 109 in the bill discernment section 100 will be turned on, the discernment section conveyance motor 108 rotates in the payment direction (step S4).

[0236] If the discernment section conveyance motor 108 rotates in the payment direction, the conveyance belt 113 of standby section 100b will rotate in the payment direction the conveyance belt 114 of detection section 100a, and temporarily. Therefore, a bill 1 goes to the back further, while it had been pinched by the conveyance belt 114 and six rollers 117. While a bill 1 passes two magnetic type discernment sensors 105, the flank light type discernment sensor 104 arranged at detection section 100a, and the central light type discernment sensor 103, the die length, the light transmission pattern, and the magnetic pattern of a bill 1 are detected (step S5).

[0237] The discernment section conveyance motor 108 stops in the place where the back end

of a bill 1 passed the flank light type discernment sensor 104 (step S6). Here, discernment section MPU501a compares the discernment data received from the magnetic type discernment sensor 105 and each optical type discernment sensor 103,104 with the data of the various bills 1 beforehand memorized by discernment section MPU501a, and judges whether it is a true ticket (step S7).

[0238] Consequently, when each detected discernment data is in agreement with neither of the data of three sorts of bills, discernment section MPU501a judges the bill 1 paid in to be a fake bill. And payment and hard flow are made to rotate the discernment section conveyance motor 108 (step S8). A bill 1 is conveyed with the conveyance belt 114 of detection section 100a by this to a slot for bills 101.

[0239] The discernment section conveyance motor 108 stops and it will be in the condition of waiting for the drawing of a fake bill in the place where the back end of the fake bill returned to the slot for bills 101 passed the central light type discernment sensor 103 (step S9). And it judges whether as for carrier beam discernment section MPU501a, the bill 1 was drawn out in the signal from the inlet-port sensor 102 (step S10). If a bill 1 is drawn out and the inlet-port sensor 102 stops detecting a bill 1, bill receipt equipment will return to the condition of waiting for the payment of the following bill 1 (step S11). On the other hand, when a bill 1 is not drawn out, discernment section MPU501a returns to step S9, and waits for the drawing of a bill 1.

[0240] Moreover, when the discernment data of the inserted bill 1 are in agreement with one of bill data, the bill 1 paid in is judged to be a true ticket. And the discernment section conveyance motor 108 rotates in the payment direction again (step S12), and a bill 1 progresses to standby section 100b in response to actuation of each conveyance belt 114,113 temporarily.

[0241] In the phase which the back end of a bill 1 established in the lower part of the drawing prevention lever 112 of detection section 100a and which drew out and passed the prevention lever-sensor 106, the discernment section conveyance motor 108 stops, and an electromagnetic clutch 109 becomes off (step S13). Therefore, while a bill 1 stops by standby section 100b temporarily, the drawing prevention lever 112 starts from the lower part of detection section 100a. By this, the drawing of a bill 1 becomes impossible henceforth.

[0242] Next, the bill discernment section 100 performs advice of payment to the control section 509 of high order machines, such as an automatic vending machine, through the external communications department 508 while sending a true ticket signal to a control section 500 (step S14). The bill discernment section 100 will be in the condition of waiting for the true ticket acknowledge signal from the control section 500 which controls the bill conveyance section 200 (step S15).

[0243] On the other hand, the bill conveyance section 200 and a control section 500 are in the standby condition like the standby condition of step S1 of the bill discernment section 100,

after turning ON a power source (step S16). And the bill conveyance section 200 and a control section 500 will judge whether the true ticket signal has been checked, if the true ticket signal from the bill discernment section 100 in step S14 is inputted (step S17).

[0244] Consequently, when a control section 500 (specifically CPU501) receives a true ticket signal, a signal is sent to each conveyance gate solenoid 232,262 of each stackers 300a and 300b according to the class of bill 1. And CPU501 rotates a stepping motor 700 while opening either [of 1000 yen] the conveyance gate 231 or the 5000 yen conveyance gate 261 (step S18). By this, the conveyance belt 202 of the bill conveyance section 200 drives in the payment direction, and payment preparation starts. In addition, since the conveyance gate 291 of 10,000 yen is always opened when a bill 1 is a ten thousand yen bill, ON of a conveyance gate solenoid is not performed. Therefore, payment preparations are made by rotating only a stepping motor 700.

[0245] On the other hand, when it is judged that the true ticket signal is not received, CPU501 returns to step S16, and maintains a standby condition.

[0246] If payment preparations are made, CPU501 will send a true ticket acknowledge signal to discernment section MPU501a (step S19). It judges whether discernment section MPU501a received the true ticket acknowledge signal from CPU501 (step S20).

[0247] Consequently, when discernment section MPU501a receives a true ticket acknowledge signal, the bill 1 which is in standby section 100b temporarily is conveyed by the discernment section conveyance motor 108 rotating in the payment direction to the bill conveyance section 200 (step S21). In this phase, since the electromagnetic clutch 109 is off, even if it inserts the following bill 1 from a slot for bills 101, the conveyance belt 114 is not driven and the following bill 1 is not incorporated. Then, discernment section MPU501a will be in the condition of waiting for the true ticket acknowledge signal for the second time from CPU501 (step S22).

[0248] On the other hand, the bill 1 sent to the bill conveyance section 200 passes the conveyance way sensor 255, if the trouble of a jam etc. does not arise on the way (step S23). In the place where the back end of a bill 1 passed the conveyance way sensor 255, CPU501 sends a true ticket acknowledge signal to discernment section MPU501a (step S24).

[0249] It judges whether discernment section MPU501a received the true ticket acknowledge signal (step S25). Consequently, when a true ticket acknowledge signal is received, the discernment section conveyance motor 108 stops (step S26). On the other hand, when the true ticket acknowledge signal is not received, the standby condition of step S22 is maintained.

[0250] If the discernment section conveyance motor 108 stops, actuation of return and the bill discernment section 100 will end the bill discernment section 100 in the standby condition which can pay [following / 1] in (step S27).

[0251] On the other hand, the bill 1 which passed the conveyance way sensor 255 faces to either of each stackers 300a, 300b, and 300c from one conveyance gate of each conveyance

gate 231,261,291. Here, if the case of a thousand-yen bill is taken for an example, a thousand-yen bill will pass the stack inlet-port sensor 307 formed in the bill conveyance opening 301 (step S28). In addition, also in other bills, it is the same step although a thousand-yen bill is explained to an example about step S33 from step S28.

[0252] If the back end of a thousand-yen bill passes the stack inlet-port sensor 307, CPU501 will stop a stepping motor 700, after going through sufficient time amount to contain a bill 1 inside stacker 300a thoroughly in response to the signal from the stack inlet-port sensor 308 (step S29). By halt of a stepping motor 700, each conveyance belt 304,312 of the conveyance device section 309 stops. And a bill 1 is laid on SUTAKKUA-MU 332 which is pressing down the top face of the bill 1 contained inside stacker 300a.

[0253] Next, RIFUTOMO-TA 333 half-rotates in the direction which raises SUTAKKUA-MU 332 (step S30). The bill 1 laid on SUTAKKUA-MU 332 contacts each conveyance belts 304 and 312, goes caudad from between two plates of SUTAKKUA-MU 332, and receives the force. Then, a bill 1 is caudad passed through from between two plates of SUTAKKUA-MU 332, and is laid on the bill 1 on the pusher-plate 325. Then, SUTAKKUA-MU 332 stops from the conveyance belt 304,312 in an upper predetermined location.

[0254] A halt of SUTAKKUA-MU 332 rotates a stepping motor 700 in the payment direction according to the instruction of CPU501 (step S31). In addition, with the gestalt of this operation, 24 steps of stepping motors 700 rotate in the payment direction. Even if there is a bill 1 into which it had not gone to the back of stacker 300a at the time of payment, by this order actuation, other bills 1 and edges which are contained are arranged and it is laid.

[0255] Next, SUTAKKUA-MU 332 descends, when RIFUTOMO-TA 333 half-rotates, and it stops in the location where bottom sensor of stack lift 341b is turned on (step S32).

Consequently, the pusher-plate 325 is in the condition loading the bill 1 contained including the bill 1 paid in, and is pressed down by SUTAKKUA-MU 332.

[0256] And while the gate solenoid 232 becomes off 1000 yen (step S33) and the conveyance gate 231 closes 1000 yen, advice of registration of payment is performed to the control unit 509 of a high order machine. Above, payment actuation of bill receipt equipment is completed (step S34). And actuation of the control unit 509 of a high order machine is also ended simultaneously (step S35).

[0257] (10) It is [0258] about payment actuation. Next, the case where two thousand-yen bills are contributed is made into an example, and payment actuation is explained. The flow chart of payment actuation is shown in drawing 55 and drawing 56. Hereafter, payment actuation of bill receipt equipment is explained according to a flow chart.

[0259] The advice of payment which serves as a signal for contributing two thousand-yen bills from the control unit 509 of high order machines, such as an automatic vending machine, is sent to CPU501 (step S51).

[0260] CPU501 makes delivery and the bill discernment section 100 a payment prohibition condition for a payment inhibiting signal at the bill discernment section 100 (step S52). CPU501 controls the bill stowage 300 and the bill conveyance section 200 by previous advice of payment. That is, IJIEKUTOGE-TOSORENOIDO 227 of the bill conveyance section 200 serves as ON, and the ejection conveyance gate 226 is opened. The gate solenoid 232 serves as ON 1000 yen simultaneously, and the conveyance gate 231 of 1000 yen is opened.

[0261] And SUTAKKUA-MU 332 goes up by the revolution of RIFUTOMO-TA 333 (step S53). The pusher-plate 325 stops in the place where the top face of the bill 1 in the most significant of the bill 1 loaded into the pusher-plate 325 touched each conveyance belt 304,312. Under the present circumstances, the end stopper 334 is in the condition of having depressed the back end of a bill 1 downward lightly according to the elastic force of a spring 335.

[0262] Next, when a stepping motor 700 rotates in the payment direction, each conveyance belt 304,312 drives in the payment direction (step S54). The bill of the top of the thousand-yen bill contained is taken out toward the bill conveyance opening 301 by this from stacker 300a. Under the present circumstances, the thousand-yen bill of the 2nd sheet also receives actuation of the payment direction with each conveyance belt 304,312. However, he is trying not to jump out besides stacker 300a by the separation roller 310, the friction roller 320, and roller guide 311 which were prepared in the bill conveyance opening 301.

[0263] If the head of the thousand-yen bill taken out in the exterior of stacker 300a passes the stack inlet-port sensor 307 (step S55), the stack inlet-port sensor 307 will send a signal to CPU501. Then, CPU501 turns ON stack bill Bure-KISORENOIDO (step S56).

[0264] Consequently, the stopper-arm 348 prepared in the back end of the conveyance device section 309 rotates, and the brake member 351 connected to head 350a of a brake arm 350 is pressed against the back end of the thousand-yen bill of the 2nd sheet. Simultaneously, the roller arm 353 rotates, and the roller 354 which exists at the head goes caudad from the top face of the thousand-yen bill of the 1st sheet, and it pushes. The thousand-yen bill and each conveyance belt 304,312 of the 1st sheet are pulled apart by this.

[0265] The thousand-yen bill of the 1st sheet is conveyed in response to actuation of the conveyance belt 304 to the bill conveyance section 200 in a pinching part with the contact section and the separation roller 310, and roller 317 of the stack inlet-port upper roller 302 and the stack inlet-port lower roller 303. The die length and the light transmission pattern of a bill 1 are detected by this sensor 307 by the midst by which the thousand-yen bill has passed the stack inlet-port sensor 307 (step S57).

[0266] the back end of a thousand-yen bill -- the stack inlet-port sensor 307 -- passing (step S58) -- stack bill Bure-KISORENOIDO becomes off (step S59). In addition, the bill 1 inside stacker 300a is made not to be conveyed with a brake arm 350 and the roller arm 353 fallen.

[0267] Next, it judges whether the double feed of CPU501 has been carried out in response to

the data signal from the stack inlet-port sensor 307 (step S60). Consequently, if it judges that the double feed is carried out, rejection processing which progresses to step S61 and is mentioned later will be performed.

[0268] On the other hand, if it is judged that a double feed has not been carried out, as for CPU501, a bill 1 will judge that it is the judgment of being the right, i.e., a thousand-yen bill, (step S62). Consequently, if it is the bill 1 of another class, rejection processing of step S61 will be performed. Moreover, when judged as a true ticket as a result of discernment of a bill 1, a thousand-yen bill is conveyed by ejection section 400a from the ejection conveyance gate 226 it is [the gate] already open (step S63).

[0269] Next, CPU501 judges whether the thousand-yen bill of two sheets was conveyed with the bill 1 of assignment number of sheets, i.e., this example, (step S64). If only one sheet is conveyed, actuation not more than step S54 is repeated in order to send a bill 1 to ejection section 400a further. In addition, the thousand-yen bill conveyed previously is in the condition of having been laid in the momentary hold plate 410 of ejection section 400a until the thousand-yen bill of the 2nd sheet is conveyed by ejection section 400a.

[0270] On the other hand, ejection section 400a's conveyance of the thousand-yen bill of two sheets rotates a stepping motor 700 with the bill 1 of assignment number of sheets, i.e., this example, in the payment direction (step S65). 24 step revolutions are carried out with the gestalt of this operation.

[0271] Next, by half-rotating RIFUTOMO-TA 333, SUTAKKUA-MU 332 goes caudad, moves and depresses the pusher-plate 325 caudad from the bill conveyance opening 301 (step S66). Then, a signal is sent to IJIEKUTOGE-TOSORENOIDO 227 and the 1000 yen gate solenoid 232 from CPU501, and each solenoid 227,232 becomes off. The ejection conveyance gate 226 and the 1000 yen conveyance gate 231 are shut by this (step S67).

[0272] Next, CPU501 rotates ejection RIFUTOMO-TA 471 and drops RIFUTOBE-SU 450 (step S68). By the revolution of ejection RIFUTOMO-TA 471, lift sensor - with which the revolving arm 473 was equipped and which is not illustrated is turned on. Error processing will be required, if lift sensor - checks whether it is ON (step S69) and CPU501 is not turned on (step S70).

[0273] On the other hand, if lift sensor - is ON, CPU501 will turn ON the ejection shutter-solenoid 440 (step S71). By this, the hold plate 410 laps with the bill payment actuator 420 temporarily. And the magnet 428 with which the lower part of the bill detection plate 427 was equipped laps with the ejection bill existence sensor 429 with the bill 1 caudad pushed by RIFUTOBE-SU 450.

[0274] On the other hand, the shutter 413 of the bill payment opening 401 opens by descent of the hold plate 410 temporarily. At this time, the crookedness arm 442 rotates and ejection shutter - top sensor 443a becomes ON. As for both CPUs501, the ejection bill existence sensor 429 and ejection shutter - top sensor 443a check whether it is turned on (step S72).

Consequently, error processing will be required if both sensors 429,443a is not turned on (step S70).

[0275] On the other hand, if both sensors 429,443a is turned on, CPU501 will rotate a stepping motor 700 in the payment direction (step S73). By this, all the bills 1 laid on the hold plate 410 temporarily receive actuation of the payment direction. If a bill 1 moves in the payment direction and the bill detection plate 427 is passed, this plate 427 will start. CPU501 checks whether the ejection bill existence sensor 429 has become off (step S74).

[0276] Consequently, error processing will be required if the ejection bill existence sensor 429 continues being ON (step S75). On the other hand, if the ejection bill existence sensor 429 becomes off, a stepping motor 700 will stop (step S76). The head of a bill 1 is in the condition of having come out of the bill payment opening 401 the one half grade, in this condition.

[0277] And a standby condition is maintained until a bill 1 is drawn out and the ejection exhaust port sensor 444 becomes off (step S77). If a bill 1 is drawn out altogether, CPU501 will judge whether the ejection exhaust port sensor 444 became off (step S78). If the ejection exhaust port sensor 444 does not become off, it returns to step S76 and sets in the condition as it is.

[0278] If the ejection exhaust port sensor 444 becomes off, ejection RIFUTOMO-TA 471 will rotate and RIFUTOBE-SU 450 will go up (step S79). Moreover, the hold plate 410 is lifted from the bill payment actuator 420 in the upper part temporarily. By this, the shutter 413 of the bill payment opening 401 is closed.

[0279] Next, CPU501 sends out a payment prohibition discharge signal to the bill discernment section 100 which was in the payment prohibition condition. The payment prohibition condition of the bill discernment section 100 is canceled by this (step S80), and the bill discernment section 100 ends return and its actuation in the original condition by it (step S81).

[0280] advice of the purport that CPU501 completed payment actuation to the high order machine control unit 509 on the other hand -- carrying out -- actuation of bill receipt equipment -- ending (step S82) -- actuation of the high order machine control unit 509 is also ended (step S83).

[0281] (11) It is [0282] about rejection actuation. Next, the rejection actuation performed when normal payment actuation or payment actuation which was mentioned above is not performed (i.e., when a jam, a double feed, different ticket mixing, etc. arise) is explained.

[0283] When a trouble occurs in the middle of payment actuation or payment actuation, after the device which make easy to remove the bill 1 which produced the jam, the device in which a bill 1 is conveyed to rejection section 400b, and an error message are carried out, it corresponds by adopting the device in which error processing is performed. In these, the actuation which performs rejection actuation which conveys a bill 1 to rejection section 400b

when a jam happens in the middle of payment and it is three when the different ticket 2 is conveyed at the time of payment when a bill 1 causes a double feed at the time of payment or is said.

[0284] Moreover, error processing says the processing which a manager performs by human power, when a jam arises for example, at the time of payment and a bill 1 cannot be conveyed [like] to rejection section 400b.

[0285] The flow chart of rejection actuation when a bill 1 raises a jam to drawing 57 at the time of payment is shown. Hereafter, it explains according to this flow chart. Since it is as common as payment actuation, actuation after putting a bill 1 into the slot for bills 101 of the bill discernment section 100 until it is conveyed by the bill conveyance section 200 is omitted.

[0286] Rejection actuation will be started, if a jam is raised by somewhere while a bill 1 moves the bill conveyance section 200 (step S101). In addition, generating detection of a jam is performed as follows. That is, a bill 1 is the number of steps of the conveyance way sensor 255 to the predetermined range, and CPU501 is judged to be what the jam generated when not reaching to the stack inlet-port sensor 307 grade with which the inlet port of each stackers 300a, 300b, and 300c was equipped. Because the number of steps in case a bill 1 passes through between both the sensors 255,307 normally is in the predetermined range, it judges by the number of steps of a stepping motor 700.

[0287] When a jam is generated, first, a revolution of a stepping motor 700 stops and actuation of the conveyance belt 202 stops. (Step S102) . Here, there are what a bill 1 generates in the condition [being detected by the conveyance way sensor 255], and a thing generated in the location which is not detected by this sensor 255 in a jam. The former jam is a jam which a bill 1 (especially thousand-yen bill) generates in the part included in the 1000 yen conveyance gate 231 which is just before the bill conveyance opening 301 of stacker 300a for thousand-yen bills.

[0288] Moreover, the latter jam is a jam which for example, five thousand-yen bills or a ten thousand yen bill generates in the part included in each conveyance gate 261,291. It judges whether with two kinds of these jams, since rejection actuation differs, it has been turned on by CPU501 receiving the light which the conveyance way sensor 255 reflected in the bill 1 first (step S103).

[0289] Consequently, when the conveyance way sensor 255 is turned on, CPU501 makes the bill conveyance section 200 rotate the delivery stepping motor 700 for a signal. By this, the conveyance belt 202 drives in the payment direction (step S104). Actuation can be driven a maximum of 200 steps with the gestalt of this operation, although only the number of steps set up beforehand is possible.

[0290] As a result of driving the conveyance belt 202 in the payment direction, CPU501 judges whether the bill 1 passed the conveyance way sensor 255, and this sensor 255 became off (step S105).

[0291] Consequently, when the conveyance way sensor 255 is not turned off, a jam cannot be canceled depending on driving the conveyance belt 202 in the payment direction. Therefore, it comes (step S106) to require error processing. On the other hand, when the conveyance way sensor 255 becomes off, a stepping motor 700 stops with the signal from CPU501 (step S107).

[0292] In this phase, a bill 1 exists in the gate outside surface of the ejection conveyance gate 226 which is just before the bill conveyance opening 402 of the ejection rejection section 400. Therefore, from this condition, a bill 1 cannot be directly conveyed to rejection section 400b. Then, first, CPU501 turns OFF a conveyance gate solenoid (in the case of usual 1000 yen gate solenoid 232), in order to close the open conveyance gate (step S108). [0293] Next, a stepping motor 700 is rotated in the payment direction, and the conveyance belt 202 is driven in the payment direction (step S109). Although only the number of steps set up beforehand is possible, it enables it to drive this actuation a maximum of 300 steps with the gestalt of this operation. To the midst to which only the predetermined number of steps is driving the conveyance belt 202 in the payment direction, the back end of a bill 1 passed the conveyance way sensor 255, and became off, or CPU501 judges no (step S110).

[0294] Consequently, without the back end of a bill 1 passing the conveyance way sensor 255, if this sensor 255 continues being ON, error processing will be required (step S111). On the other hand, if the conveyance way sensor 255 becomes off, the bill 1 will have passed through the ejection conveyance gate 226. CPU501 turns ON IJIEKUTOGE-TOSORENOIDO 227 and opens the ejection conveyance gate 226 (step S112).

[0295] Next, CPU501 makes the ejection rejection section 400 rotate delivery and ejection RIFUTOMO-TA 471 for a signal. RIFUTOBE-SU 450 which was standing by to rejection section 400b moves caudad, and serves as organization which receives the bill 1 which raised the jam (step S113).

[0296] Next, CPU501 rotates a stepping motor 700. By this, the conveyance belt 202 drives in the payment direction (step S114). The bill 1 which raised the jam is conveyed on RIFUTOBE-SU 450 from the ejection conveyance gate 226 of the ejection rejection section 400. Under the present circumstances, passage of a bill 1 is checked by the ejection inlet-port sensor 403 (step S115).

[0297] Then, ejection RIFUTOMO-TA 471 rotates and RIFUTOBE-SU 450 goes up to rejection section 400b. RIFUTOBE-SU 450 pushes up the rotation type arm 485, is in the condition loading the presser-foot plate 488 and the different ticket 2, and stops it to rejection section 400b (step S116). By the above actuation, rejection actuation of the bill 1 which raised the jam of 1000 yen near the conveyance gate 231 is completed (step S117).

[0298] On the other hand, when five thousand-yen bills or a ten thousand yen bill raises a jam near each conveyance gate 261,291, it becomes actuation simpler than the case where a thousand-yen bill raises a jam. That is because there is no bill 1 in the part of the ejection conveyance gate 226 and it does not become the obstacle of aperture actuation of this gate

226 in the case of a jam. In step S103, if the conveyance way sensor 255 is off, specifically, the actuation after the above-mentioned step S112 will be started.

[0299] As mentioned above, when a jam arises at the time of payment, he does not carry out an error message and is trying to only convey a bill 1 to rejection section 400b. Since this has high possibility of canceling if it drives to an opposite direction when a jam arises in the payment direction, it is because the maintenance effort of equipment can be decreased by the processing. In addition, when reentry golden processing is not made to perform but carrying out rejection processing feels a pain [bill / 1], it is because there is a danger that a jam for the second time will be generated.

[0300] When a double feed is carried out to drawing 58, the flow chart of rejection actuation when the different ticket 2 is contributed is shown. Hereafter, it explains according to this flow chart.

[0301] Since it is common in the usual payment actuation mentioned above, actuation after a payment signal is sent to CPU501 from the high order machine control units 509, such as an automatic vending machine, until a bill is taken out from each stackers 300a, 300b, and 300c is omitted.

[0302] The so-called double feed taken out from each stackers 300a, 300b, and 300c after the 2nd bill 1 has stuck with the 1st bill 1 may happen. A bill 1 detects a light transmission pattern as the die length of a bill 1 by this sensor 307 to the midst which has passed the stack inlet-port sensor 307.

[0303] CPU501 judges whether the bill 1 has carried out the double feed to the die length of a bill 1 from the light transmission pattern, or it is not the different ticket 2. Usually, since the die length of a bill 1 becomes longer than predetermined die length when a double feed is carried out, discernment of only the die length of a bill 1 is sufficient. However, if it is the bill 1 in the condition of having almost lapped, it will be almost the same in the die length of one bill 1, and it will become difficult to detect a double feed. Then, the double feed of a bill 1 is judged by measuring a light transmission pattern. If a double feed or conveyance of the different ticket 2 is performed, CPU501 will start the following actuation (step S151).

[0304] When it is judged that the bill 1 or the different ticket 2 which carried out the double feed was conveyed, it checks first whether the bill 1 exists near the ejection inlet-port sensor 403 (step S152). And previously, when having contributed two or more bills 1, when the on-going bill 1 exists near the ejection inlet-port sensor 403, actuation of the conveyance belt 202 is continued until this bill 1 passes the ejection inlet-port sensor 403 (step S153).

[0305] On the other hand, when there is no bill 1 near the ejection inlet-port sensor 403, a stepping motor 700 is suspended. Under the present circumstances, stack bill Bure-KISORENOIDO considers as as [ON], and stacker 300a is in the condition of having stopped the payment of the following bill 1 (step S154).

[0306] Next, CPU501 rotates ejection RIFUTOMO-TA 471. Consequently, it becomes the

organization which receives the bill 1 which RIFUTOBE-SU 450 which was standing by to rejection section 400b moved caudad, and carried out the double feed, and the different ticket 2 (step S155).

[0307] Then, CPU501 rotates a stepping motor 700 (step S156). The conveyance belt 202 drives in the payment direction, and the bill 1 and the different ticket 2 on the conveyance belt 202 which carried out the double feed are conveyed on RIFUTOBE-SU 450 by this.

[0308] Next, passage of the bill 1 which carried out the double feed, or the different ticket 2 is checked by the ejection inlet-port sensor 403 formed in the bill conveyance opening 402 (step S157). And ejection RIFUTOMO-TA 471 rotates and RIFUTOBE-SU 450 goes up to rejection section 400b. RIFUTOBE-SU 450 is in the condition loading the bill 1 or the different ticket 2 which carried out the double feed to the presser-foot plate 488, and stops to rejection section 400b. In addition, error processing will be required if the bill 1 grade which carried out the double feed is not checked (step S158).

[0309] On the other hand, only the number of steps set up beforehand can move actuation of the conveyance belt 202 now. With the gestalt of this operation, setting out of a maximum of 1000 steps is possible. Check actuation of whether only the set-up number of steps rotates a stepping motor 700, and the bill 1 grade which carried out the double feed is in the location still detected by the stack inlet-port sensor 307 or the conveyance way sensor 255 is performed (step S159).

[0310] Error processing will be required when the bill 1 which carried out the double feed is in the location detected by each above-mentioned sensor 307,255 as a result of a check (step S160). When the bill 1 grade which carried out the double feed is not detected on the other hand but all the bills 1 that carried out the double feed are laid in RIFUTOBE-SU 450, actuation on RIFUTOBE-SU 450 by ejection RIFUTOMO-TA 471 is performed (step S161). Then, stack bill Bure-KISORENOIDO becomes off and a double-feed-prevention device is canceled (step S162).

[0311] Next, a stepping motor 700 rotates in the payment direction, and the so-called order actuation of the above-mentioned bill is performed so that a double feed for the second time may not arise (step S163). Then, payment actuation of the following bill 1 is started (step S164). Rejection actuation is completed by these actuation of a series of (step S165).

[0312] Next, actuation when a jam arises at the time of payment is explained. Hereafter, it explains according to the flow chart of drawing 59 .

[0313] First, CPU501 detects as mentioned above that the jam was generated during conveyance of a bill 1 by the number of steps between each sensor 307,255 (step S181). And CPU501 stops a revolution of a stepping motor 700. Consequently, actuation of the conveyance belt 202 stops (step S182).

[0314] Each conveyance gate solenoid 232,262 is maintained with ON (step S183). It is because it will lead to breakage of a bill 1 if each conveyance gate 231,261 is shut when the

jam is raised near each conveyance gate 231,261. Moreover, it is because clearance of the bill 1 which raised the jam cannot be performed.

[0315] In addition, about the jam at the time of payment, conveyance to rejection section 400b will not be performed, but error processing will be required (step S184). By this, the manager of bill receipt equipment will open the conveyance way door section 201, and will remove a bill 1. By this actuation, the rejection actuation to the jam at the time of payment is completed (step S185).

[0316] In addition, the gestalt of the above-mentioned operation is an example of the gestalt of suitable operation of this invention, and the operation variously transformed in the range which is not restricted to this and does not deviate from the summary of this invention is possible for it.

[0317] For example, the thing of structure as shown in drawing 60 is sufficient as SUTAKKUA-MU 332 shown in drawing 15 etc. Hereafter, the structure of SUTAKKUA-MU and actuation are explained based on drawing 60. In addition, since the pusher-plate 325 and conveyance device section 309 grade which were prepared in the interior of stacker 300a shown in drawing 60 are common in stacker 300a shown in drawing 15 etc., they omit explanation.

[0318] SUTAKKUA-MU 801 is rotatable by the driving means connected with the separation roller 310 and the shaft 318 which is the same axle. Moreover, SUTAKKUA-MU 801 is the width of face which can press down the upside end face of the bill 1 loaded into the pusher-plate 325, and consists of two arms larger than the width of face of the conveyance device section 309.

[0319] The die length of two arms is the die length which presses down a part for the point of a bill 1. The main roles of SUTAKKUA-MU 801 are preventing the collision with the bill 1 pay in at the time of payment, and **** 1 currently loaded, and controlling lifting of the pusher-plate 325 at the time of payment. Therefore, even if it is the die length shown in drawing 60, this role can fully be played. Moreover, when the die length of SUTAKKUA-MU 801 is shortened, there is also a merit which can miniaturize the drive of SUTAKKUA-MU 801.

[0320] Next, the payment actuation which conveys a bill 1 to the exterior of the payment actuation and this stacker 300a which convey a bill 1 inside stacker 300a using SUTAKKUA-MU 801 is explained.

[0321] First, payment actuation is explained based on the flow chart and drawing 60 of drawing 61.

[0322] SUTAKKUA-MU 801 made the interior of stacker 300a rotate an arm in the case of the payment of a bill 1, and has stopped at it in the A section which is the location which depressed the pusher-plate 325 from the top face of the bill 1 contained. Payment actuation begins from this standby condition (step S231).

[0323] In the state of payment standby, space is formed between the top face of the bill 1 contained, and each conveyance belt 304,312. Therefore, the bill 1 actuation of the conveyance belt 304 wound around the stack inlet-port upper roller 302 pays in is conveyed inside stacker 300a, without colliding with the already contained bill 1. The bill 1 pay in is in the condition which put the head on SUTAKKUA-MU 801, and is loaded in the condition of having bent on the top face of the bill 1 contained (step S232).

[0324] Next, SUTAKKUA-MU 801 rotates counter clockwise in drawing 60 centering on a shaft 318 (step S233). The pusher-plate 325 goes up by the elastic force of the spring which is not illustrated. If it rotates to the B section by which SUTAKKUA-MU 801 is illustrated, the bill 1 paid in will fall out from between SUTAKKUA-MU 801, and will be loaded on the bill 1 contained. To it and coincidence, the pusher-plate 325 suspends the bill 1 paid in in the condition of having made it contacting to each conveyance belt 304,312 (step S234).

[0325] SUTAKKUA-MU 801 continues rotation further from the B section, and stops it in the C section of the stacker 300a exterior (step S235). Next, the stack inlet-port upper roller 302 drives to the payment direction and an opposite direction by revolution of a stepping motor 700. That is, the so-called order actuation which arranges the bill 1 and edge where the bill 1 paid in was contained, and is laid is performed (step S236).

[0326] If this order actuation is completed, SUTAKKUA-MU 801 will rotate clockwise from the C section in drawing 60 (step S237). SUTAKKUA-MU 801 depresses the pusher-plate 325 from the top face of the bill 1 paid in after the event of SUTAKKUA-MU 801 coming to the B section (step S238). This depression is performed by resisting the spring which energizes the pusher-plate 325 up.

[0327] And SUTAKKUA-MU 801 rotates and stops to the A section (step S239). It has these the actuation of a series of, and payment actuation is completed (step S240).

[0328] Drawing 62 is the flow chart of the payment actuation of stacker 300a shown in drawing 60 . Hereafter, payment actuation is explained based on the flow chart and drawing 60 of drawing 62 .

[0329] Before payment actuation, SUTAKKUA-MU 801 is depressing the pusher-plate 325 in the A section shown in drawing 60 . Payment actuation ***** from this standby condition (step S251). First, a payment signal is taken out from the high order machine control unit 509 to a control section 500 (step S252). SUTAKKUA-MU 801 rotates counter clockwise in drawing 60 (step S253).

[0330] According to the elastic force of the spring which is not illustrated, the pusher-plate 325 follows in footsteps of lifting [the head of SUTAKKUA-MU 801], and goes up (step S254). And when it comes to the B section by which SUTAKKUA-MU 801 is illustrated, the pusher-plate 325 stops, where the top face of the bill 1 contained is contacted to each conveyance belt 304,312 (step S255). SUTAKKUA-MU 801 continues rotation further and stops it at C point (step S256).

[0331] Next, a stepping motor 700 rotates and each conveyance belt 304,312 drives in the payment direction (step S257). The bill 1 in the most significant of the bill 1 contained is contributed from the bill conveyance opening 301 by actuation of each conveyance belt 304,312 in the exterior of stacker 300a (step S258).

[0332] After payment, each conveyance belt 304 drives to the payment direction and an opposite direction, and the so-called order actuation which arranges the edge of the bill 1 contained is performed. Thereby, the bill 1 which jumped out in the direction outside stacker 300a on the occasion of payment is returned to the location of the normal of stacker 300a (step S259). After order actuation is completed, SUTAKKUA-MU 801 rotates clockwise in drawing 60 from the C section, and comes to the B section (step S260).

[0333] SUTAKKUA-MU 801 is the process in which it results [from the B section] in the A section, resists the energization to the upper part of the spring which is not illustrated, and depresses the pusher plate 325 (step S261). And the pusher plate 325 stops SUTAKKUA-MU 801 while stopping in the A section (step S262). Payment actuation is completed by these actuation of a series of (step S263).

[0334] In addition, you may enable it to rotate SUTAKKUA-MU 801 using the elastic force of the actuation of those other than a motor, for example, a spiral spring, a spring, etc.

[0335] The member used for the bill receipt equipment in the gestalt of each above-mentioned operation and structure are good also as a member as shown below etc.

[0336] For example, it is worn out as bill receipt equipment is used for the conveyance belt 304 as shown in drawing 15 for a long period of time. On the other hand, the bill 1 conveyed to the interior or the exterior of stacker 300a is pinched by the stack inlet-port upper roller 302, a roller 317, and the separation roller 310 as shown in drawing 17. For this reason, if the conveyance belt 304 is worn out, an insert lump of the bill 1 with the conveyance belt 304,312 and the separation roller 310 will become sweet. Therefore, segregation falls and there is a possibility that a double feed may become easy to occur.

[0337] Then, it follows in footsteps of wear of the conveyance belt 304 as shown in drawing 66 from drawing 63, and you may make it form the belt wear imitation device section 810 which maintains uniformly the force which depresses the conveyance belt 304 caudad and puts it.

[0338] Drawing 63 and drawing 64 are the side elevations and perspective views of the belt wear imitation device section 810, respectively. Hereafter, according to these drawings, the structure of the belt wear imitation device section 810 is explained.

[0339] The belt wear imitation device section 810 has the stanchion 813 which connects the roller 812 formed in the roller 811 formed in the location adjacent to the top face of bottom conveyance belt 304b with the conveyance belt 304 bottom, and the location adjacent to the top face of upside conveyance belt 304a with the conveyance belt 304 upside so that it may be illustrated. Stanchion up edge 813a of a stanchion 813 is connected with a stanchion 813 and

plate point 814a of the plate 814 mostly arranged in the direction of a right angle.

[0340] furthermore, the stanchion 813 -- wear of the conveyance belt 304 -- following in footsteps -- the direction of a vertical -- the upper and lower sides -- it has the shaft 815 so that it may become movable. Moreover, the roller 816 is being fixed to the location adjacent to the underside of upside conveyance belt 304a. However, the roller 816 is not connected with a stanchion 813. A part of plate 814 and the upper wall of stacker 300a are connected through the spring 817 so that a roller 811 and a roller 812 may be energized caudad.

Moreover, plate point 814b of a plate 814 is being fixed.

[0341] Therefore, if the conveyance belt 304 is worn out, a plate 814 will rotate clockwise in drawing 63, and a stanchion 813 will move caudad. That is, a plate 814 rotates focusing on plate point 814b, and a roller 812 continues sandwiching upside conveyance belt 304a between rollers 816. On the other hand, a roller 811 depresses bottom conveyance belt 304b caudad by falling caudad by the abrasion loss of the conveyance belt 304, and takes doses. Plate point 814b is being fixed to the only clockwise rotatable one-way clutch 818. Therefore, the stanchion 813 has the structure where it cannot go up once it descends.

[0342] The condition of the stacker inlet port by the existence of the belt wear imitation device section 810 is compared and shown in drawing 65 and drawing 66. First, the case where there is no belt wear imitation device section 810 shown in drawing 65 is explained. If the conveyance belt 304 is worn out and it decreases to B from the original thickness (referred to as A), the distance C of the roller top face of the separation roller 310 and the underside of the conveyance belt 304 will decrease to C- (A-B). Therefore, the pinching force of the bill 1 with the conveyance belt 304 and the separation roller 310 declines, and it becomes easy to carry out a double feed.

[0343] Then, such a problem will be lost if the belt wear imitation device section 810 as shown in drawing 66 is formed. As for the roller 811 of the belt wear imitation device section 810, it descends, a part, i.e., A-B, worn out of the conveyance belt 304. Therefore, the conveyance belt 304 inclines toward the interior of stacker 300a by descent of a roller 811 slightly. For this reason, spacing of the top face of the separation roller 310 and the conveyance belt 304 serves as the near infinite distance D from C- (A-B) at C. Since this actuation is performed by following in footsteps of wear of the conveyance belt 304, the distance of the top face of the separation roller 310 and the conveyance belt 304 is always kept almost constant. Therefore, segregation is kept constant.

[0344] In addition, when it continues wearing the conveyance belt 304 out and it goes out, bill receipt equipment becomes unusable. Then, that this condition should be prevented, when the conveyance belt 304 reaches fixed thickness, the device in which exchange of other members [exhausting] (for example, roller) including this belt 304 is told may be attached. For example, when the rotation of the one-way clutch 818 shown in drawing 63 reaches the specified quantity, the approach it is made for a warning lamp to turn on through a control

section 500 is also considered.

[0345] Moreover, the quantity of light change by gap with the photo detector of the infrared sensor formed in the wall surface of stacker 300a is detected, and you may make it warn by preparing the light emitting device of an infrared sensor in a part of belt wear imitation device section 810.

[0346] Moreover, it is also possible about the structure inside each pawl of the conveyance gate 231 as shown in drawing 9 and drawing 10 to make central pawl 231a and the pawls 231b and 231c of both sides into reverse.

[0347] The conveyance gate which reversed the flesh-side structure of pawl 231a of the 1000 yen conveyance gate 231 shown in drawing 67 at drawing 10 and the flesh-side structure of the pawls 231b and 231c of each ends of this gate 231 is shown. Each roller 820,821,823 and the belt 824 as moving-part material stretched by these roller 820 grades are formed in the background of each pawls 231b and 231c of both sides, respectively. The belt 824 serves as a device rotated synchronizing with a revolution of a stepping motor 700.

[0348] Moreover, the belt 825 is formed in the part located in the background of central pawl 231a when the conveyance gate 231 closes 1000 yen. The belt 825 is stretched by each roller 826,827,828.

[0349] A roller 829 is arranged in the roller 827 wound around the belt 825, and the location which counters, and does not touch a belt 825. Moreover, the roller 830 in the both sides of a roller 829 is wound around the conveyance belt which is not illustrated. The conveyance belt and belt 824 which are not illustrated touch.

[0350] Therefore, in case the bill 1 conveyed by actuation of the conveyance belt 202 and the conveyance belt with which the above is not illustrated goes into the open 1000 yen conveyance gate 231, the course is changed compulsorily, receiving actuation of two belts 824 as moving-part material in ends, and it goes to stacker 300a. Simultaneously, parts for both the center section at the head of a bill 1 are led to the belt 825 and roller 829 which rotate in the payment direction, and go to stacker 300a.

[0351] In addition, the conveyance gate 261 shall also have the same structure and the same device as the conveyance gate 231 of 1000 yen of 5000 yen. Therefore, when it pays [5] in, it is carried in to stacker 300b for 5 thousand-yen bills in the same actuation as an above-mentioned thousand-yen bill.

[0352] On the other hand, the 10,000 yen conveyance gate 291 shall be made into the configuration which consists of one pawl of the fixed center, and shall have the same structure as pawl 231a of the center of the 1000 yen conveyance gate 231, and the structure on a background. In addition, as stated previously, it is good also as the same as the structure on the background of the pawl of the center of the 1000 yen conveyance gate 231 shown in drawing 10 .

[0353] Thus, smooth conveyance is attained even if it is the conveyance path which bends and

goes into each stackers 300a, 300b, and 300c mostly from the bill conveyance section 200 at a right angle by preparing moving-part material in the background of each conveyance gate 231,261,291.

[0354] Moreover, the conveyance gate 231,261 adopted with the gestalt of each operation mentioned above is not limited to the configuration which has three pawls. Moreover, the conveyance gate 291 is not limited to one pawl, either. If it is the structure where the conveyance belt 212 grade with which the conveyance way of the bill conveyance section 200 is equipped is not contacted, the configuration of conveyance gate 231 grade will not be asked. Furthermore, it is not necessary to establish the gate in the inlet port from the bill conveyance section 200 to stacker 300a.

[0355] Moreover, although a bill 1 changes a direction into a right angle mostly and he is trying to convey it from the bill conveyance section 200 to stacker 300a, when bending and conveying at a right angle, it is not limited, but is made with the include angle of arbitration. Moreover, although the case where a bill 1 was conveyed to each stackers 300a, 300b, and 300c was explained as an operation of moving-part material, smooth conveyance will be carried out also in case a bill 1 is taken out from each stackers 300a, 300b, and 300c.

[0356] Moreover, neither a roller 249 nor belt 245 grade is limited when rotating synchronizing with conveyance belt 211 grade. You may make it the conveyance belt 211 rotate independently by another driving means, without making the conveyance belt 211 contact. That is, a bill is not pinched between moving-part material and a conveyance means, but it is only moving-part material and you may make it convey ***** to the interior or the exteriors, such as stacker 300a.

[0357] Moreover, the structure into which each stackers 300a, 300b, and 300c which carry out [the stackers] a laminating and are contained were not limited to the object for thousand-yen bills, the object for 5 thousand-yen bills, the object for ten thousand yen bills, and the loaded structure, but loaded the bill 1 in order of arbitration from the top is sufficient as the bill stowage 300. Moreover, the structure where it is not limited to the structure where each stackers 300a, 300b, and 300c were loaded, but these were made to arrange in parallel is sufficient.

[0358] Furthermore, although it becomes the most desirable bill receipt equipment as mentioned above by having a stacker for the three-sort bills of a thousand-yen bill, five thousand-yen bills, and a ten thousand yen bill, it may consider as one kind in all of equipment for bills at the request of a time, or the demand of an activity, or may carry out to two kinds, or you may make it correspond to four or more kinds of bills in present Japan.

[0359] For example, 1 or the thing which it had two or more may be used in the stacker with which 1 or the thing which it has two or more also contains only a thousand-yen bill, five thousand-yen bills and a ten thousand yen bill, a thousand-yen bill or a ten thousand yen bill, and five thousand-yen bills for any one kind of stacker of a thousand-yen bill, five

thousand-yen bills, or a ten thousand yen bill.

[0360]

[Effect of the Invention] Bill receipt equipment is equipped with the receipt room which contains a bill, and the conveyance path in which a bill is conveyed, and while changing the direction of the bill conveyed, he is trying to prepare the moving-part material which rotates in the conveyance direction of the bill in the corner of a street of a conveyance path according to invention according to claim 1. For this reason, even if it has the part at which the conveyance way of a bill turns rapidly, a bill can change the conveyance direction compulsorily and is conveyed. For this reason, it can convey smoothly, without a bill raising a jam.

[0361] Moreover, according to invention according to claim 2, according to a service condition, since moving-part material is made into a roller, belts, or such combination, while smooth conveyance is attained with easy structure, since moving-part material can be considered as a suitable configuration, according to various conditions, it becomes applicable.

[0362] Moreover, the include angle of a corner of a street is made into 80 to 110 degrees, and a part of moving-part material is prepared in the gate arranged at a corner of a street, and he is trying to convey according to invention according to claim 3, pinching the bill conveyed at the gate between the conveyance means conveyed to moving-part material and moving-part material. For this reason, by the switching operation of the gate, a bill can be conveyed in a receipt room, or that location can be passed and it can convey in somewhere else. And a bill can be conveyed to more compulsory and insurance according to the operation which sandwiches a bill in addition to the turn of a bill.

[0363] Furthermore, the gate is made into the rake configuration which consists of two or more pawls, the end is fixed to the pawl of the center of two or more pawls, and, as for moving-part material, the other end is made to be fixed to a part for receipt room entrance hand anterior part according to invention according to claim 4. By this, a bill will be conveyed at a receipt room with the conveyance belt of the bill conveyance section, and the movable guide which exists between them. That is, it is wide range to the cross direction of a bill, and is conveyed in response to actuation. Therefore, since local actuation is not received, a bill will be conveyed straightly, without moreover being torn.

[0364] Moreover, according to invention according to claim 5, since the receipt room was classified into plurality according to the class of bill, it can use for various kinds of devices, such as both substitutes of an automatic vending machine and a large denomination bill treating large sum goods, and a **** machine of pachinko.

[0365] Moreover, according to invention according to claim 6, a receipt room is classified in the vertical direction, one conveyance means is established common to the flank of the classified receipt room, and it considers as the gate which fixed the bottom gate at the bottom of a conveyance means in the state of open, and is made to consider as the gate which can

open and close the gates other than the bottom gate freely. For this reason, since the driving means which opens and closes the gate through which a bill does not pass becomes unnecessary, while leading to failure and reduction of cost, bill receipt equipment is longwise, and breadth is narrow and will become small as a whole.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is a block diagram showing the configuration of the whole bill receipt equipment which is the gestalt of operation of this invention.

[Drawing 2] It is the block diagram having shown the configuration of the control section in the bill receipt equipment of drawing 1 , and the relation between a control section and the other configuration sections.

[Drawing 3] It is the whole side elevation having shown the detailed configuration of the bill receipt equipment of drawing 1 , and is drawing which was made to pile up a part of main parts mutually, and was shown.

[Drawing 4] It is the side elevation of the bill discernment section of the bill receipt equipment shown in drawing 3 from drawing 1 , and is drawing which was made to pile up a part of main parts mutually, and was shown.

[Drawing 5] It is a top view in the condition of having removed a part for a covering device from the bill discernment section of the bill receipt equipment of drawing 1 to drawing 3 , and is drawing piling up and showing some main parts.

[Drawing 6] It is drawing showing the bill conveyance section of the bill receipt equipment of drawing 3 from drawing 1 , and is a perspective view in the condition of having opened the conveyance way door section.

[Drawing 7] It is the side elevation showing the main parts of the bill conveyance section of the bill receipt equipment of drawing 3 from drawing 1 , and is drawing in which laying main parts and showing a part.

[Drawing 8] It is drawing showing the detail configuration which saw the bill conveyance section of the bill receipt equipment of drawing 3 from the slot for bills and the opposite direction from drawing 1 , and is drawing piling up and showing some main parts.

[Drawing 9] It is the perspective view which looked at the conveyance gate part of the bill receipt equipment of drawing 3 from the direction of the bill discernment section from drawing 1 .

[Drawing 10] In order to clarify circumference structure of the conveyance gate shown in drawing 9 , it is drawing which omitted the predetermined member from drawing 9 .

[Drawing 11] It is the perspective view showing the stacker for thousand-yen bills which

constitutes the bill stowage of the bill receipt equipment of drawing 3 from drawing 1 .

[Drawing 12] It is the important section side elevation showing the stack inlet-port sensor with which the stacker for thousand-yen bills shown in drawing 11 was equipped, and its circumference.

[Drawing 13] It is a perspective view in the condition of having removed the conveyance device section of the stacker for thousand-yen bills of drawing 11 .

[Drawing 14] It is drawing showing the roller guide with which the outlet of the stacker for thousand-yen bills of drawing 11 was equipped, and its circumference.

[Drawing 15] It is drawing showing some main parts repeatedly with the side elevation of the payment standby condition of the stacker for thousand-yen bills of drawing 11 .

[Drawing 16] It is the top view which saw the stacker for thousand-yen bills of drawing 15 from the upper part of equipment, and is drawing showing some main parts repeatedly.

[Drawing 17] It is drawing which saw the condition at the time of a bill being taken out from the stacker for thousand-yen bills of drawing 11 from the direction of bill conveyance opening.

[Drawing 18] It is drawing which saw the condition in front of the payment of the stacker for thousand-yen bills of drawing 11 from bill conveyance opening, and is drawing showing some main parts repeatedly.

[Drawing 19] It is drawing extracting and showing the pusher-spring which energizes the pusher-plate of drawing 18 , and it up.

[Drawing 20] It is drawing showing splash actuation of the working pusher-plate which constitutes a part of pusher-plate of drawing 18 . Thickness a on the right-hand side of the bill with which (A) is contained, and left-hand side thickness b show an almost equal condition. Thickness a on the right-hand side of the bill with which (B) is contained shows a condition thinner than left-hand side thickness b. Thickness a on the right-hand side of the bill with which (C) is contained shows a condition thicker than left-hand side thickness b.

[Drawing 21] It is the side elevation showing a condition just before a bill is contributed from the stacker for thousand-yen bills of drawing 11 .

[Drawing 22] It is drawing having shown the end stopper which is the stopper member of the stacker for thousand-yen bills of drawing 15 and drawing 21 , and its circumference part. (A) shows a payment standby condition. (B) shows the condition at the time of payment.

[Drawing 23] It is drawing which saw the stacker for thousand-yen bills of drawing 15 from bill conveyance opening and an opposite direction, and is drawing piling up and showing some main parts.

[Drawing 24] It is drawing which saw the stacker for thousand-yen bills of drawing 21 from bill conveyance opening and an opposite direction, and is drawing piling up and showing some main parts.

[Drawing 25] It is drawing showing the condition that the double-feed-prevention device of the stacker for thousand-yen bills of drawing 18 is working, and is drawing piling up and

showing some main parts.

[Drawing 26] It is the perspective view of the ejection rejection section of the bill receipt equipment of drawing 1 to drawing 3 .

[Drawing 27] It is drawing piling up and showing some main parts with the side elevation of the ejection rejection section of drawing 26 .

[Drawing 28] It is the perspective view having shown the ejection lower roller prepared in bill conveyance opening of the ejection rejection section of drawing 26 , and its edge strip.

[Drawing 29] It is drawing which saw the condition that the bill was carried in to bill conveyance opening of the ejection rejection section of drawing 26 , from the direction of bill conveyance opening.

[Drawing 30] It is the perspective view having shown the condition of a hold plate and a bill payment actuator temporarily before the payment of the ejection rejection section of drawing 26 .

[Drawing 31] It is the perspective view showing the condition that the hold section and a bill payment actuator lapped temporarily just before the payment of the ejection rejection section of drawing 26 .

[Drawing 32] It is the perspective view having shown the structure of the bill payment actuator which is a part of ejection rejection section of drawing 26 .

[Drawing 33] It is the decomposition perspective view having extracted and shown the rotation type arm and RIFUTOBE-SU of the ejection rejection section of drawing 26 . A shows the direction where a rotation plate is rotatable. B shows the location where the rotation type arm holds the level condition. C is the location which the rotation type arm rotated up by lifting of RIFUTOBE-SU from a lower part.

[Drawing 34] In case RIFUTOBE-SU of the ejection rejection section of drawing 26 goes up in the rejection section, it is drawing which saw the motion of a rotation type arm and a rotation plate from the direction and its direction of a left lateral of bill payment opening. (A) shows the condition before RIFUTOBE-SU moves to the upper part from the ejection section. RIFUTOBE-SU goes up toward the rejection section and (B) shows the condition that the rotation plate is rotating the rotation type arm up. (C) shows the condition that RIFUTOBE-SU completed migration in the rejection section.

[Drawing 35] It is the bottom view which saw RIFUTOBE-SU of the ejection rejection section of drawing 26 from the lower part of bill receipt equipment.

[Drawing 36] It is the side elevation showing typically the condition of having inserted the bill with each roller of RIFUTOBE-SU and a bill payment actuator in front of the payment of the ejection rejection section of drawing 26 .

[Drawing 37] It is drawing which saw the internal structure of RIFUTOBE-SU shown in drawing 36 from the direction of bill payment opening.

[Drawing 38] They are the roller shown in drawing 37 , and the enlarged drawing of the

circumference part.

[Drawing 39] It is the side elevation of the ejection rejection section at the time of a different ticket being conveyed on RIFUTOBE-SU of the ejection rejection section of drawing 26 , and is drawing piling up and showing some main parts.

[Drawing 40] It is the perspective view showing the slot which engages the presser-foot plate of the ejection rejection section of drawing 26 with this.

[Drawing 41] It is the top view which saw the presser-foot plate of drawing 40 from the equipment upper part.

[Drawing 42] It is the side elevation which saw the presser-foot plate of drawing 40 from the direction of bill payment opening (the direction of A in drawing).

[Drawing 43] It is drawing which saw the ejection rejection section of drawing 27 from the direction of bill payment opening, and is drawing piling up and showing some main parts.

[Drawing 44] It is drawing which saw the ejection rejection section of drawing 39 from the direction of bill payment opening, and is drawing piling up and showing some main parts.

[Drawing 45] It is drawing piling up and showing some main parts with the side elevation of the ejection rejection section of drawing 44 .

[Drawing 46] It is the side elevation showing the condition in front of payment of the ejection rejection section of drawing 26 , and is drawing piling up and showing some main parts.

[Drawing 47] It is drawing which saw the ejection rejection section of drawing 46 from the direction of bill payment opening, and is drawing piling up and showing some main parts.

[Drawing 48] It is drawing showing change of actuation of a bill detection plate of the ejection rejection section of drawing 46 transparent. (A) shows the bill detection plate of a condition just before contributing the bill which is on a hold plate temporarily, and the condition of the circumference of it. The bill which is on a hold plate temporarily moves in the payment direction, and (B) shows the condition that the bill detection plate started up.

[Drawing 49] It is the perspective view which saw the switching condition of a key prepared in the bill storing section door of the bill receipt equipment of drawing 3 from drawing 1 from the interior of a stacker. It is (A) at the locking time and (B) is in the condition at the time of unlocking.

[Drawing 50] It is the enlarged drawing seen from the side to which a bill storing section door opens the switching condition of the locking section which is the 1 configuration section of the key section of the bill receipt equipment of drawing 3 from drawing 1 . It is (A) at the locking time and (B) is in the condition at the time of release.

[Drawing 51] It is drawing which saw the key section of the bill receipt equipment of drawing 3 from the upper part of bill receipt equipment from drawing 1 . 602L shows the location of the crank metallic ornaments at the time of locking.

[Drawing 52] It is the block diagram showing a part of relation of each configuration section of the bill receipt equipment of drawing 3 from drawing 1 .

[Drawing 53] It is the block diagram showing each configuration section of the bill receipt equipment of drawing 3 from drawing 1 other than drawing 52 .

[Drawing 54] It is the flow chart which shows payment actuation of the bill receipt equipment of drawing 3 from drawing 1 .

[Drawing 55] It is the flow chart which shows payment actuation of the bill receipt equipment of drawing 3 from drawing 1 .

[Drawing 56] It is drawing showing a continuation of the flow chart of drawing 55 .

[Drawing 57] The flow chart of rejection actuation when a bill raises a jam from drawing 1 at the time of the payment of the bill receipt equipment of drawing 3 is shown.

[Drawing 58] When a double feed is carried out from drawing 1 at the time of the payment of the bill receipt equipment of drawing 3 , the flow chart of rejection actuation when a different ticket is conveyed is shown.

[Drawing 59] The flow chart of actuation when a bill raises a jam from drawing 1 at the time of the payment of the bill receipt equipment of drawing 3 is shown.

[Drawing 60] It is the side-face sectional view of the stacker at the time of changing to SUTAKKUA-MU shown with the gestalt of the operation in the bill receipt equipment of drawing 3 from drawing 1, and having the arm of a rotation type near the bill conveyance opening of a stacker.

[Drawing 61] It is the flow chart which shows payment actuation of bill receipt equipment equipped with the stacker of drawing 60 .

[Drawing 62] It is the flow chart which shows payment actuation of bill receipt equipment equipped with the stacker of drawing 60 .

[Drawing 63] It is drawing having shown the structure at the time of adding the belt wear imitation device section to the bill receipt equipment of drawing 3 from drawing 1 .

[Drawing 64] It is the perspective view showing the belt wear imitation device section and the circumference of drawing 63 .

[Drawing 65] When there is no belt wear imitation device section of drawing 63 , it is drawing showing the physical relationship of the conveyance belt at the time of wearing a conveyance belt out, and a separation roller.

[Drawing 66] When it has the belt wear imitation device section of drawing 63 , it is drawing showing the physical relationship of the conveyance belt at the time of wearing a conveyance belt out, and a separation roller.

[Drawing 67] It is the perspective view which saw the 1000 yen conveyance gate which reversed the flesh-side structure of the pawl of the center of the 1000 yen conveyance gate shown in drawing 10 , and the flesh-side structure of the pawl of each ends of this gate from the direction of the bill discernment section.

[Description of Notations]

100 Bill Discernment Section

- 101 Slot for Bills
- 200 Bill Conveyance Section
- 202 Conveyance Means (Conveyance Belt)
- 211 Conveyance Means (Conveyance Belt)
- 212 Conveyance Means (Conveyance Belt)
- 231 Gate (1000 Yen Conveyance Gate)
- 231a Pawl
- 231b Pawl
- 231c Pawl
- 244 Moving-Part Material (Belt)
- 245 Belt
- 249 Roller
- 261 Gate (5000 Yen Conveyance Gate)
- 291 Gate (10,000 Yen Conveyance Gate)
- 300 Bill Stowage
- 300a Receipt room (stacker for thousand-yen bills)
- 300b Receipt room (stacker for 5 thousand-yen bills)
- 300c Receipt room (stacker for ten thousand yen bills)
- 400 Ejection Rejection Section
- 400a Ejection section
- 400b Rejection section
- 401 Bill Payment Opening
- 500 Control Section
- 501 CPU
- 501a Discernment section MPU
- 507 Power Supply Section
- 700 Stepping Motor

[0202]

Figure 48 shows the change in the operation of the bill sensing plate 427 during the output of the bill 1. In a step immediately before the output of the bill 1 shown in (A), the bill sensing plate 427 is pushed downward by the bill 1 compressed by the temporary holding plate 410 owing to the weight of the lift base 450. Thus, in this state, the magnet 428 fixed to the lower end of the bill sensing plate 427 overlaps the bill sensor 429 sensing whether or not the bill 1 to be output is present (ON state).

[0203]

However, when the trailing end of the bill 1 is conveyed from the bill sensing plate 427 to the bill output port 401 as shown in (B), the bill sensing plate 427 rises to separate the magnet 428 from the bill sensor 429 (OFF state). Then, the conveyance of the bill 1 is stopped, with the bill 1 held so as to protrude partly from the bill output port 401. This prevents the entire bill 1 from protruding out of the apparatus. Thus, the user of the vending machine or the like can easily receive the bill 1.